



USER MANUAL

CHARGING STATIONS FOR ELECTRIC VEHICLES

204.CAxxx

204.CBxxx

204.UBxxx

204.WBxxx

INDICE

1 SYSTEM DESCRIPTION	4
1.1 MODES OF OPERATION.....	4
2 USER INTERFACE	6
2.1 PLUGS TO BE USED	8
3 WORKING DESCRIPTION.....	9
3.1 STAND-ALONE FREE MODE	9
3.1.1 FREE without LOCKING	9
3.1.2 FREE with plug LOCKING	16
3.2 STAND-ALONE PERSONAL MODE.....	21
3.2.1 PERSONAL without LOCKING	21
3.2.2 PERSONAL with plug LOCKING	27
3.2.3 PERSONAL with plug/lid LOCKING.....	33
3.3 NET MODE.....	38
3.3.1 NET without LOCKING	38
3.3.2 NET with plug LOCKING.....	41
3.3.3 NET with plug/lid LOCKING	44
4 TECHNICAL CHARACTERISTICS AND INSTALLATION INSTRUCTIONS	48
4.1 STAND-ALONE (FREE and PERSONAL MODE).....	48
4.2 LOCAL NET (NET MODE).....	48
4.2.1 Serial connection from SERVER (P1) to CHARGING STATION (RS485)	49
4.3 SIZE OF POWER SUPPLY CONDUCTORS	49
4.4 CALCULATION OF INSTALLED MAX POWER	50
4.5 CONDUITS DIAMETER	50
5 INSTALLING INSTRUCTIONS	51
6 ELECTRONIC CONTROL CARD CONFIGURATION	53
6.1 BASIC CARD (208.BAS)	53
6.1.1 CONNECTIONS.....	53
6.1.2 WIRING.....	54
6.1.3 DIP SWITCHES SW1	54
6.1.4 JUMPERS	54
6.2 EXPANSION CARD (208.EXP).....	55
6.2.1 CONNECTIONS.....	55
6.2.2 WIRING.....	55

6.2.3 DIP SWITCHES SW2	56
6.2.4 DIP SWITCHES SW3	56
6.2.5 TYPICAL FUNCTIONAL DIAGRAM	56
6.3 WELDED CONTACTS CARD (COIMP)	57
6.4 CONFIGURING SOFTWARE (<i>Tool SLSetup</i>)	58
7 POWER ON/OFF PROCEDURE	59
8 PROGRAMMING (user cards registering)	60
8.1 ACTIVE CARD (<i>Tool SLActive</i>)	60
8.2 CLOCK SETTING	61
8.3 RESET	61
9 MANAGEMENT SYSTEM	62
9.1 DASHBOARD	62
9.2 STATIONS	63
9.2.1 EDIT STATION	64
9.2.2 LOG STATION	65
9.3 USERS	66
9.3.1 EDIT USER	66
9.3.2 ADD NEW USER	67
9.3.3 LOG USER	68
9.4 SYSTEM	69
10 SAFETY INFORMATION	70
11 PROTECTING THE ENVIRONMENT	71
12 DOWNLOADS AND DOCUMENTS	71

1 SYSTEM DESCRIPTION

The SCAME charging stations support the charging mode 3 according to IEC/EN 61851-1¹, which consists in a connection of the vehicle to the a.c. supply network using special connectors, in compliance with IEC 62196-1 and 2, and in the presence of a control circuit inside the station to verify the continuity of the protective conductor between the vehicle and the grid during charging phase.

Such control is necessary to ensure that no hazardous voltage may be transferred by the accidental contact of unaware persons; therefore charging mode 3 is the most recommended form of EV charging, used in public, work and household charging points, delivering both slow and fast charging to guarantee maximum safety to users.

The control circuit also provides communication between the station and the vehicle through the PWM circuit (Pulse Width Modulation) described in Annex A of IEC/EN 61851-1: the station communicates to the vehicle the grid availability through a signal modulated in frequency, the vehicle fits the load and return its own status through a voltage value (with mode 3 the pilot function is provided by a "typical" control pilot circuit).

In case of vehicles without PWM, the circuit works in "simplified" mode measuring only the resistance value while the station allows the charge with current limitation to 10 A (in this case we refer to "simplified" control pilot circuit).

In case of connectors with the possibility of different wirings, the control circuit provides a further identification of the cable size through the Resistor Coding described in Annex B.5 of IEC/EN 61851-1: depending on the value of resistance detected between proximity contact PP and earthing contact, a maximum current is provided according to the current capability of the cable assembly. The PWM circuit then makes sure that the charging current is lower than the maximum current can be delivered.

1.1 MODES OF OPERATION

Depending on the version and the type of connection between the stations, there are different working modes:

STAND-ALONE FREE without LOCKING: The station is not connected with other stations and works independently, the access at socket outlets is free and the charging is open to all; under normal operating conditions the charging is stopped by pressing the button (which in this case enables charging stop but not the plug unlocking function) or by disconnecting the plug under load.

STAND-ALONE FREE with PLUG LOCKING: The station is not connected with other stations and works independently, the access at socket outlets is free and the charging is open to all; under all normal operating conditions the charging is stopped by pressing the plug unlocking button.

STAND-ALONE PERSONAL without LOCKING: The station is not connected with other stations and works independently, the access at socket outlets is free but the charging is permitted for users whose identification code, contained in a RFID card, is recorded in the memory of the station; under normal operating conditions the charging is stopped by using the same card or removing the plug during charging.

STAND-ALONE PERSONAL with PLUG LOCKING: The station is not connected with other stations and works independently, the access at socket outlets is free but the charging is permitted for users whose identification code, contained in a RFID card, is recorded in the memory of the station; under normal operating conditions the charging is stopped by using the same card.

STAND-ALONE PERSONAL with PLUG/LID LOCKING: The station is not connected with other stations and works independently, the access at socket outlets is free but the charging is permitted for users whose identification code, contained in a RFID card, is recorded in the memory of the station; under normal operating conditions the charging is stopped by using the same card.

NET without LOCKING: The station is connected to other stations and works together with network server, the access at socket outlets is free but the charging is allowed for authorised users whose identification code, contained in a RFID card, is stored in the memory of the station; under normal operating conditions the charging is stopped by using the same card or removing the plug during charging.

NET with PLUG LOCKING: The station is connected to other stations and works together with network server, the access at socket outlets is free but the charging is allowed for authorised users whose identification code, contained in a RFID card, is stored in the memory of the station; under normal operating conditions the charging is stopped by using the same card.

NET with PLUG/LID LOCKING: The station is connected to other stations and works together with network server, the access at socket outlets is free but the charging is allowed for authorised users whose identification code, contained in a RFID card, is stored in the memory of the station; under normal operating conditions the charging is stopped by using the same card.

¹ **Standard references** In case of specific versions of standards or regulations (identified by date of publication, edition number, version number, etc.) only the document cited applies. For references without mention of a specific version, the latest version of the referenced document (including any amendments) applies.

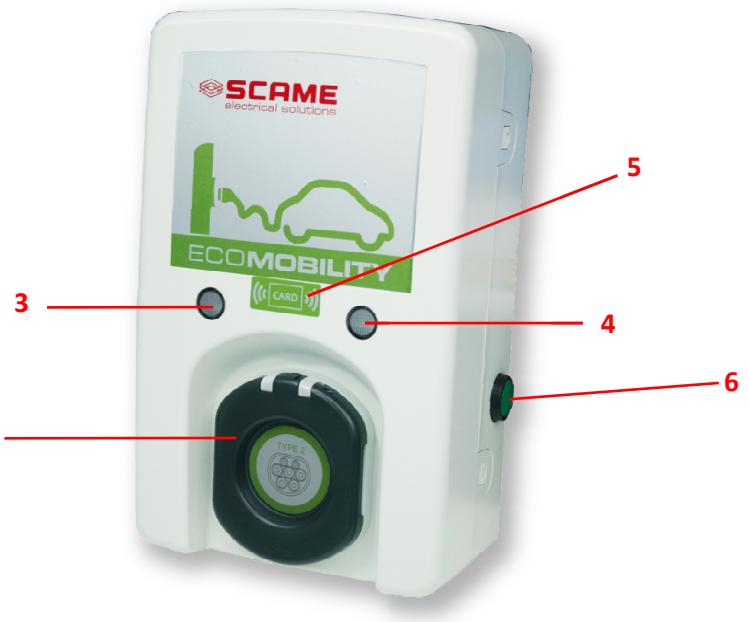
2 USER INTERFACE



204.UBXXX



204.WBXXX



- 1) General lighting: if blue the charging is in progress; if green the station is in standby and ready to charge, if red there is a fault and if OFF there is no mains power supply.
- 2) Display LCD: they provide the users with the instructions for performing the charging, show information about the current charging and about any anomaly.
- 3) White LED status indicator: if ON the operation is normal, if OFF a fault has been detected; during boot process and ongoing checks may be OFF or flashing; during cards registering procedure is flashing.
- 4) Blue LED status indicator: if ON the charging is in progress, if flashing the charging is suspended; during cards registering is flashing.
- 5) RFID (Radio-Frequency IDentification) reader: to enable the charging or to open the lid of the socket-outlet, the user card must be placed above this area.
- 6) The socket-outlets can be the type 3A (16 A single-phase), type 3C (16/32 A single-phase and 16/32 A three-phase) or type 2 (16/32 A single-phase and 16/32 A three-phase) with or without an integrated anti-extraction locking system in conformity with IEC 62196-1 and IEC 62196-2; also the german socket ² (schuko type) according to IEC 60884-1 can be mounted on the stations. Type 1 (single-phase) and type 2 (single-phase/three-phase up to 63 A) vehicle connectors are provided in conjunction with a supply cable permanently connected (tethered leads) to the charging station (type C connection).
- 7) Releasing plug/charging stop push button.

² The use of the socket schuko-type with anti-extraction locking allows to get a mode 1 charging system having the same features as the sockets with lock intended for mode 3 operation.

In this case, however, the anti-extraction function is obtained by locking the lid even when the plug is inserted.

2.1 PLUGS TO BE USED

The usable charging plugs can be the type 3A (single-phase 16 A), type 3C (single-phase or three-phase up to 32 A) and type 2 (single-phase or three-phase up to 32 A) compliant with IEC 62196-1 and IEC 62196-2; the german plug can be used too.

Type 3A plug



Type 3C plug



Type 2 plug



German plug



3 WORKING DESCRIPTION

The charging stations, designed to accommodate a variety of mounting arrangements, can typically be grouped into two categories: the pedestal or wall mounted products. The enclosures with pedestal mounting (204.CA/CB series) , for indoor and outdoor locations, are suitable for charging on-street car parks, at taxi stands, in parking lots (companies, shopping centers, hotels, airports, fast foods, restaurants, etc.), equipped with a maximum of four sockets (in the double-sided version) allowing simultaneous charging up to four electric vehicles. The wall boxes (204.WB/UB series) are in general installed at off-street charging locations; such places include home garages and driveways (pole mounted) as well as underground and multistory car parks at shopping centers, company parking lots, where wall installation is required.

When requested for the type of socket , a special control function on the power contactor is provided to ensure the maximum safety level during plug removing operation; through the welded contacts management card (COIMP) or the mirror Contact function it will be verified that there are no hazardous voltages on the contacts and therefore on the socket during the power contactor opening phase.

The functions described below are valid for all SCAME charging stations providing the charging pillars 204.CAxxx and 204.CBxxx have displays and lightings on the top while the 204.WBxxx and 204.UBxxx wall boxes only have the acoustic (beep) and visual (white and blue status LED) signalings.

Moreover the pillars equipped with sockets having the integrated anti-extraction plug device will have backup batteries to ensure unlocking and releasing function in case of power failure.

3.1 STAND-ALONE FREE MODE

In this mode, the station allows the charging to all the users and the identification is not requested.

However the charging can start only if the plug connected to the socket outlet is properly wired and the vehicle is equipped with a control pilot circuit according to Annex A of IEC/EN 61851-1, required for the charging in mode 3.

3.1.1 FREE without LOCKING

Under normal operating conditions charging is stopped by pressing the push button or by removing the plug under load.

At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, F, DATE, TIME] where F indicates that the current mode is FREE.

Normal operation


- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the power contactor closes, the light turns blue, the blue led turns on, the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.





- Remove the plug and close the lid.
 - The charging is stopped by pressing the button corresponding to the socket used, you hear 1 confirmation beep, the display shows [END OF CHARGE, WAITING], the power contactor opens, the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG]; when the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the plug is withdrawn during charging, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led turns off, the display briefly reads [VEHICLE DISCONNECTED] and then for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the plug is disconnected the charge being suspended, the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

Anomalies before charging

RC anomaly (no Resistor Coding)

- If a 3C or type 2 plug without Resistor Coding is plugged in, , you hear 3 alarm beeps, the display shows [UNEXPECTED CABLE, UNPLUG] until the removal of the plug.

PWM anomaly (short-circuit on Control Pilot)

- If a plug is inserted in a vehicle having a short circuited CP control, you hear 3 alarm beeps, the display shows [VEHICLE DISCONNECTED, UNPLUG] until the plug is withdrawn.

Anomalies during charging

PILOT circuit failure (short circuit on CP)

- If a fault causes a short circuit of the CP control circuit, you hear 3 alarm beeps, the power contactor opens, the light turns green, the blue LED turns off , the display shows [PILOT FAILURE, UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

PILOT circuit failure (CP opening)

- In the event of loss of the control circuit (CP opening), you hear 1 signalling beep, the power contactor opens, the light turns green, the blue LED turns off , the display briefly reads [VEHICLE DISCONNECTED], the info [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] will appear for a few seconds and then

the initial display will return [PLUG IN, F, DATE, TIME]. In fact however, the plug is still inserted and before starting a new charge the plug must be removed.

Anomalous CONSUMPTION

- If the current consumption is higher than the value set by the PWM circuit or the maximum cable size, you hear 3 alarm beeps, the power contactor opens, the light turns green, the blue LED turns off, the display shows [UNEXPECTED LOAD, UNPLUG]. When the plug is removed the display will show [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] for a few seconds.

RCBO (residual current circuit breaker with overload protection) fault

- If the circuit breaker trips due to a short circuit, overload or earth fault, you hear 3 alarm beeps, the power contactor opens, the light turns red, the LEDs turn off, the display shows [RCBO FAULT, UNPLUG].
 - If the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [RCBO FAULT, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
- If the breaker is reactivated despite the plug being still connected and the failure conditions have been removed, the light turns green, the white LED turns on, the display shows [UNPLUG]; when the plug is withdrawn the display reads [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the charging station can start a new charge.

Power CONTACTOR failure

- (COIMP card) - If, the welded contacts control is provided, at the end of each charge (by pressing the button or by unplugging under load) a test will be performed on the power contactor.
 - If the fault is detected by the charging stop push button, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, DETECTED (xxx V)], [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the fault is detected by the disconnection during charging, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, DETECTED (xxx V)], [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.
- (mirror CONTACT) - If, the mirror control is provided, at the end of each charge (by pressing the button or by unplugging under load) a test will be performed on the power contactor.
 - If the fault is detected by the charging stop push button, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, MIRROR CONTACT FAULT], [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.

white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.

- If the fault is detected by the disconnection during charging, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, MIRROR CONTACT FAULT], [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
- If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.

ENERGY METER failure

- If the energy meter is faulty, you hear 3 alarm beeps, the power contactor opens, the light turns green, the LEDs turn off, the display shows [ENERGY METER, UNPLUG]; when the plug is removed the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [ENERGY METER, OUT OF ORDER]; after troubleshooting the failure the charging station power supply must be switched off and then on again.

No mains power supply

- In case of external power supply failure during a charging session, the control board is able to operate for a fixed time interval of 3 minutes via a 24 V DC power supply provided by the backup battery.
 - If the plug is connected and the charging is in progress, 3 alarm beeps will be emitted, the power contactor opens, the light turns green, the LEDs turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the power contactor closes, the light turns blue, the LEDs turn on, the charging restarts, the display will show [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION] and counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume and, if the plug is inserted, a new charging session will start.
 - If the plug is connected and the charging is suspended, 3 alarm beeps will be emitted, the power contactor stays open, the light stays green, the LED blue keep flashing, the with LED turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the white LED turns on, the display will show [WAITING FOR VEHICLE] and if the charging restarts, the counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume and, if the plug is inserted, a new charging may start.

Mains power supply failure without plug connected

- If the external power supply fails and the station has no engaged sockets, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores all the station functions will resume and the display goes back to the initial display info.

RCBO fault without plug connected

- If the circuit breaker trips but the corresponding socket has not been engaged, you hear 3 alarm beeps, the light turns red, the LEDs turn off, the display shows [RCBO FAULT, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info..

Periodic tests

If all the sockets are “free” some tests are executed on a daily basis at 00h:00m; if one of the sockets is engaged tests are performed at the earliest opportunity after 10 minutes (i.e., at 00:10 , 00:20 , etc). The system restarts, the display reads [---REBOOT---] and the following checks are carried out during the initializing procedure:

- **ENERGY METER**: If the energy meter is faulty, you hear 3 alarm beeps, the light stays green, the LEDs stay off and the display shows [ENERGY METER, OUT OF ORDER]; after troubleshooting the failure the charging station must be switched off and then on again.
- **RCBO**: If the circuit breaker trips due to a short circuit, overload or earth fault, you hear 3 alarm beeps, the light turns red, the LEDs stay off, the display shows [RCBO FAULT, OUT OF ORDER] until the failure conditions will be removed and the breaker will be reactivated; the power supply failure also causes an outage on the energy meter, detected by further 3 alarm beeps; if after the restoration of normal operating conditions the system still indicates [OUT OF ORDER] the charging station must be switched off and then on again.
- **COIMP card**: in case of anomaly, you hear 3 alarm beeps, the light stays green, the LEDs stay off and the display shows [COIMP CARD, OUT OF ORDER]; after troubleshooting the failure the charging station must be switched off and then on again.
- **Power CONTACTOR**:
 - In case of failure detected by the COIMP card, the RCBO operates, the light turns red, the LEDs stay off, the display shows [DETECTED (xxx V)], [CONTACTOR FAILURE, OUT OF ORDER] till the breaker reactivation; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - In case of failure detected by the mirror CONTACT control, the RCBO operates, the light turns red, the LEDs stay off, the display shows [MIRROR CONTACT FAULT], [CONTACTOR FAILURE, OUT OF ORDER] till the breaker reactivation; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If after the normal operating conditions have been restored, the system still indicates [OUT OF ORDER] the charging station must be switched off and then on again.

3.1.2 FREE with plug LOCKING

Under normal operating conditions the charging is stopped by pressing the button for unlocking the plug.

At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, F, DATE, TIME] where F indicates that the current mode is FREE.

Normal operation



- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the anti-extraction locking mechanism is activated (it closes and the plug is locked), the power contactor closes, the light turns blue, the blue led turns on, the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.

If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.





- Remove the plug and close the lid.
 - The charging is stopped by pressing the button corresponding to the socket used, you hear 1 confirmation beep, the display shows [END OF CHARGE, WAITING], the power contactor opens, the anti-extraction locking mechanism is deactivated (it opens and the plug is released), the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG]; when the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

Anomalies before charging

RC anomaly (no Resistor Coding)

- If a 3C or type 2 plug without Resistor Coding is plugged in, , you hear 3 alarm beeps, the display shows [UNEXPECTED CABLE, UNPLUG] until the removal of the plug.

PWM anomaly (short-circuit on Control Pilot)

- If a plug is inserted in a vehicle having a short circuited CP control, you hear 3 alarm beeps, the display shows [VEHICLE DISCONNECTED, UNPLUG] until the plug is withdrawn.

Lock (retaining device) NOT activated

- If the plug is incorrectly connected and the retaining device is not in proper position, 2 alarm beeps will be emitted, the display shows (WAITING FOR VEHICLE), the system attempts to drive the retaining device into proper position and the display therefore reads (UNEXPECTED PLUG) (UNPLUG) until the withdrawal of the plug; we recommend to insert again the plug into the socket and press hard.

Anomalies during charging

PILOT circuit failure (short circuit on CP)

- If a fault causes a short circuit of the CP control circuit, you hear 3 alarm beeps, the power contactor opens, the plug is released, the light turns green, the blue LED turns off, the display shows [PILOT FAILURE, UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

PILOT circuit failure (CP opening)

- In the event of loss of the control circuit (CP opening), you hear 1 signalling beep, the power contactor opens, the plug is released, the light turns green, the blue LED turns off , the display briefly reads [VEHICLE

[DISCONNECTED], the info [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] will appear for a few seconds and then the initial display will return [PLUG IN, F, DATE, TIME]. In fact however, the plug is still inserted and before starting a new charge the plug must be removed.

Anomalous CONSUMPTION

- If the current consumption is higher than the value set by the PWM circuit or the maximum cable size, you hear 3 alarm beeps, the power contactor opens, the plug is released, the light turns green, the blue LED turns off, the display shows [UNEXPECTED LOAD, UNPLUG]. When the plug is removed the display will show [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] for a few seconds.

RCBO (residual current circuit breaker with overload protection) fault

- If the circuit breaker trips due to a short circuit, overload or earth fault, you hear 3 alarm beeps, the power contactor opens, the plug is released, the light turns red, the LEDs turn off, the display shows [RCBO FAULT, UNPLUG].
 - If the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [RCBO FAULT, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
- If the breaker is reactivated despite the plug being still connected and the failure conditions have been removed, the light turns green, the white LED turns on, the display shows [UNPLUG]; when the plug is withdrawn the display reads [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the charging station can start a new charge.

Power CONTACTOR failure

- (COIMP card) - If, the welded contacts control is provided, at the end of each charge a test will be performed on the power contactor.
 - If a fault is detected, you hear 3 alarm beeps, the RCBO operates, the plug is released, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, DETECTED (xxx V)] and then [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.
- (mirror CONTACT) - If, the mirror control is provided, at the end of each charge a test will be performed on the power contactor.
 - If a fault is detected, you hear 3 alarm beeps, the RCBO operates, the plug is released, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, MIRROR CONTACT FAULT] and then [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF

[CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.

ENERGY METER failure

If the energy meter is faulty, you hear 3 alarm beeps, the power contactor opens, the plug is released, the light turns green, the LEDs turn off, the display shows [ENERGY METER, UNPLUG]; when the plug is removed the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [ENERGY METER, OUT OF ORDER]; after troubleshooting the failure the charging station power supply must be switched off and then on again.

No mains power supply

- In case of external power supply failure during a charging session, the control board is able to operate for a fixed time interval of 3 minutes via a 24 V DC power supply provided by the backup battery.
 - If the plug is connected and the charging is in progress, 3 alarm beeps will be emitted, the power contactor opens, the light turns green, the LEDs turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the power contactor closes, the light turns blue, the LEDs turn on, the charging restarts, the display will show [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION] and counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume and, if the plug is inserted, a new charging session will start.
 - If the plug is connected and the charging is suspended, 3 alarm beeps will be emitted, the power contactor stays open, the light stays green, the LED blue keep flashing, the with LED turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the white LED turns on, the display will show [WAITING FOR VEHICLE] and if the charging restarts, the counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume and, if the plug is inserted, a new charging may start.

Mains power supply failure without plug connected

See page 15.

RCBO fault without plug connected

See page 15.

Periodic tests

See page 15.

3.2 STAND-ALONE PERSONAL MODE

In this mode, the station allows the charging only to authorized users, whose identification code, contained in a RFID card, is recorded in the memory of the station, by passing their user badge over the appropriate card reader.

However the charging can start only if the plug connected to the socket outlet is properly wired and the vehicle is equipped with a control pilot circuit according to Annex A of IEC/EN 61851-1, required for the charging in mode 3.

3.2.1 PERSONAL without LOCKING

Under normal operating conditions the charging is stopped by using the same card or by removing the plug under load.

At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, P, DATE, TIME] where P indicates that the current mode is PERSONAL.

Normal operation



- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, the system asks the user to identify himself, you hear 3 beeps and the display will show [UNKNOWN USER, SHOW CARD].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.



- Show user card to the RFID reader.
 - If a registered card is shown (see PROGRAMMING section), you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the power contactor closes, the light turns blue, the blue led turns on and the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a registered card is not shown within one minute, you hear 3 alarm beeps, the display shows [USER UNKNOWN, UNPLUG] until the plug will be removed.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.



- Remove the plug and close the lid.
 - The charging ends by presenting the same card as previously shown, you hear 1 confirmation beep, the display reads [END OF CHARGE, WAITING], the power contactor opens, the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG]; when the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the same card used for engaging the socket is not shown, 1 alarm beep is emitted, the system status remains unchanged as well as the data on the display.
 - If the plug is withdrawn during charging, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led turns off, the display briefly reads [VEHICLE DISCONNECTED] and then for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the plug is disconnected the charge being suspended, the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

Anomalies before charging

ID unknown

- If a card not registered or a card already used to engage another socket in case of NET, is shown, you hear 3 alarm beeps, the display shows [USER UNKNOWN, UNPLUG] or [NO AUTHORIZATION, UNPLUG] if NET, until the plug will be removed.

RC anomaly (no Resistor Coding)

- If a 3C or type 2 plug without Resistor Coding is plugged in, you hear 3 alarm beeps, the display shows [UNEXPECTED CABLE, UNPLUG] until the removal of the plug.

PWM anomaly (short-circuit on Control Pilot)

- If a plug is inserted in a vehicle having a short circuited CP control, you hear 3 alarm beeps, the display shows [VEHICLE DISCONNECTED, UNPLUG] until the plug is withdrawn.

Anomalies during charging

PILOT circuit failure (short circuit on CP)

- If a fault causes a short circuit of the CP control circuit, you hear 3 alarm beeps, the power contactor opens, the light turns green, the blue LED turns off, the display shows [PILOT FAILURE, UNPLUG]; when the plug is

withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

PILOT circuit failure (CP opening)

In the event of loss of the control circuit (CP opening), you hear 1 signalling beep, the power contactor opens, the light turns green, the blue LED turns off, the display briefly reads [VEHICLE DISCONNECTED], the info [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] will appear for a few seconds and then the initial display will return [PLUG IN, P, DATE, TIME] or [PLUG IN, N.x, DATE, TIME] if NET;. In fact however, the plug is still inserted and before starting a new charge the plug must be removed.

Anomalous CONSUMPTION

If the current consumption is higher than the value set by the PWM circuit or the maximum cable size, you hear 3 alarm beeps, the power contactor opens, the light turns green, the blue LED turns off, the display shows [UNEXPECTED LOAD, UNPLUG]. When the plug is removed the display will show [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION]for a few seconds.

RCBO fault

- If the circuit breaker trips due to a short circuit, overload or earth fault, you hear 3 alarm beeps, the power contactor opens, the light turns red, the LEDs turn off, the display shows [RCBO FAULT, UNPLUG].
 - If the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [RCBO FAULT, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
- If the breaker is reactivated despite the plug being still connected and the failure conditions have been removed, the light turns green, the white LED turns on, the display shows [UNPLUG]; when the plug is withdrawn the display reads [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the charging station can start a new charge.

Power CONTACTOR failure

- (COIMP card) - If, the welded contacts control is provided, at the end of each charge (by pressing the button or by unplugging under load) a test will be performed on the power contactor.
 - If the fault is detected by the charging stop push button, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, DETECTED (xxx V)], [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the fault is detected by the disconnection during charging, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, DETECTED (xxx V)], [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.
- (mirror CONTACT) - If, the mirror control is provided, at the end of each charge (by pressing the button or by unplugging under load) a test will be performed on the power contactor.

- If the fault is detected by the charging stop push button, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, MIRROR CONTACT FAULT], [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
- If the fault is detected by the disconnection during charging, you hear 3 alarm beeps, the RCBO operates, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, MIRROR CONTACT FAULT], [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white LED turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
- If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.

ENERGY METER failure

If the energy meter is faulty, you hear 3 alarm beeps, the power contactor opens, the light turns green, the LEDs turn off, the display shows [ENERGY METER, UNPLUG]; when the plug is removed the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [ENERGY METER, OUT OF ORDER]; after troubleshooting the failure the charging station power supply must be switched off and then on again.

No mains power supply

- In case of external power supply failure during a charging session, the control board is able to operate for a fixed time interval of 3 minutes via a 24 V DC power supply provided by the backup battery.
 - If the plug is connected and the charging is in progress, 3 alarm beeps will be emitted, the power contactor opens, the light turns green, the LEDs turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the power contactor closes, the light turns blue, the LEDs turn on, the charging restarts, the display will show [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION] and counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume and, if the plug is inserted, a new charging session will start, you hear 3 alarm beeps and the display shows [UNKNOWN USER, SHOW CARD] or [NO AUTHORIZATION, SHOW CARD] if NET.
 - If the plug is connected and the charging is suspended, 3 alarm beeps will be emitted, the power contactor stays open, the light stays green, the LED blue keep flashing, the with LED turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the white LED turns on, the display will show [WAITING FOR VEHICLE] and if the charging restarts, the counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF] and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume and, if the

plug is inserted, a new charging may start, you hear 3 alarm beeps and the display shows [UNKNOWN USER, SHOW CARD]. or [NO AUTHORIZATION, SHOW CARD] if NET.

Mains power supply failure without plug connected

See page 15.

RCBO fault without plug connected

See page 15.

Periodic tests

See page 15.

3.2.2 PERSONAL with plug LOCKING

Under normal operating conditions the charging is stopped by showing the same card used for the user identification, that also allows the releasing of the plug anti-extraction system.

At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, P, DATE, TIME] where P indicates that the current mode is PERSONAL.

Normal operation



- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, the system asks the user to identify himself, you hear 3 beeps and the display will show [UNKNOWN USER, SHOW CARD].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.



- Show user card to the RFID reader.
 - If a registered card is shown (see PROGRAMMING section), you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the anti-extraction locking mechanism is activated (it closes and the plug is locked), the power contactor closes, the light turns blue, the blue led turns on and the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a registered card is not shown within one minute, you hear 3 alarm beeps, the display shows [USER UNKNOWN, UNPLUG] until the plug will be removed.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.



- Remove the plug and close the lid.
 - The charging ends by presenting the same card as previously shown, you hear 1 confirmation beep, the display reads [END OF CHARGE, WAITING], the power contactor opens, the anti-extraction locking mechanism is deactivated (it opens and the plug is released), the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG]; when the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the same card used for engaging the socket is not shown, 1 alarm beep is emitted, the system status remains unchanged as well as the data on the display.
 - If the card is shown the charge being suspended, the display will show immediately [END OF CHARGE, UNPLUG] and then [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

Note: in case of missing of the User Card, the Master Card can be used as emergency unlocking.

Anomalies before charging

ID unknown

- If a card not registered or a card already used to engage another socket in case of NET, is shown, you hear 3 alarm beeps, the display shows [USER UNKNOWN, UNPLUG] or [NO AUTHORIZATION, UNPLUG] if NET, until the plug will be removed.

RC anomaly (no Resistor Coding)

- If a 3C or type 2 plug without Resistor Coding is plugged in, you hear 3 alarm beeps, the display shows [UNEXPECTED CABLE, UNPLUG] until the removal of the plug.

PWM anomaly (short-circuit on Control Pilot)

- If a plug is inserted in a vehicle having a short circuited CP control, you hear 3 alarm beeps, the display shows [VEHICLE DISCONNECTED, UNPLUG] until the plug is withdrawn.

Lock (retaining device) NOT activated

- If the plug is incorrectly connected and the retaining device is not in proper position, 2 alarm beeps will be emitted, the display shows (WAITING FOR VEHICLE), the system attempts to drive the retaining device into proper position and the display therefore reads (UNEXPECTED PLUG) (UNPLUG) until the withdrawal of the plug; we recommend to insert again the plug into the socket and press hard.

Anomalies during charging

PILOT circuit failure (short circuit on CP)

- If a fault causes a short circuit of the CP control circuit, you hear 3 alarm beeps, the power contactor opens, the light turns green, the blue LED turns off, the display shows [PILOT FAILURE, SHOW CARD]; when the card is shown, the plug is released and the display reads [END OF CHARGE, UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then goes back to the initial display info; the station is ready for a new charge.

PILOT circuit failure (CP opening)

In the event of loss of the control circuit (CP opening), you hear 1 signalling beep, the power contactor opens, the light turns green, the blue LED turns off, the display briefly reads [VEHICLE DISCONNECTED, SHOW CARD]; when the card is shown, the plug is released, the display reads for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION], the plug is removed, the display will go back to the initial data, a new charge can start.

Anomalous CONSUMPTION

If the current consumption is higher than the value set by the PWM circuit or the maximum cable size, you hear 3 alarm beeps, the power contactor opens, the light turns green, the blue LED turns off, the display shows [UNEXPECTED LOAD, SHOW CARD]. When the card is shown, the plug is released and the display reads [END OF CHARGE, UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then goes back to the initial display info; the station is ready for a new charge.

RCBO fault

- If the circuit breaker trips due to a short circuit, overload or earth fault, you hear 3 alarm beeps, the power contactor opens, the light turns red, the LEDs turn off, the display shows [RCBO FAULT, SHOW CARD]; when the card is shown, the plug is released and the display will read [RCBO FAULT, UNPLUG].
 - If the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [RCBO FAULT, OUT OF ORDER]; when the breaker is restored and if the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated despite the plug being still connected and the failure conditions have been removed, the light turns green, the white LED turns on, the display shows [UNPLUG]; when the plug is withdrawn the display reads for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then it goes back to the initial display info; if the control circuit is still operating, the charging station can start a new charge.
- If the external power supply fails and then it is restored (after RCBO fault), the display shows [RCBO FAULT, OUT OF ORDER]: to unlock the plug it needs to show the card.

Power CONTACTOR failure

- (COIMP card) - If, the welded contacts control is provided, at the end of each charge (by presenting the card) a test will be performed on the power contactor.
 - If the fault is detected, you hear 3 alarm beeps, the RCBO operates, the plug is released, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, DETECTED (xxx V)], [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and if the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when

the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is ready for a new charge.

- (mirror CONTACT) - If, the mirror control is provided, at the end of each charge a test will be performed on the power contactor.
 - If a fault is detected, you hear 3 alarm beeps, the RCBO operates, the plug is released, the light turns red, the LEDs turn off, the display shows [END OF CHARGE, MIRROR CONTACT FAULT] and then [CONTACTOR FAILURE, UNPLUG]; if the plug is removed after the tripping of the protection (without reactivation), the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [CONTACTOR FAILURE, OUT OF ORDER]; when the breaker is restored and the failure conditions have been removed, the light become green, the white led turns on, the display briefly shows [OUT OF ORDER] and then it goes back to the initial display info.
 - If the breaker is reactivated as the plug being inserted and if the failure conditions have been removed, the lighting turns green, the white LED will turn on and the display reads [UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and if the control circuit is still operating, the station is available for a new charge.

ENERGY METER failure

- If the energy meter is faulty, you hear 3 alarm beeps, the power contactor opens, the light turns green, the LEDs turn off, the display shows [ENERGY METER, SHOW CARD]; when the card is shown, the plug is released and the display reads [END OF CHARGE, UNPLUG]; when the plug is withdrawn the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] and then [ENERGY METER, OUT OF ORDER]; after troubleshooting the failure the charging station power supply must be switched off and then on again.

No mains power supply

- In case of external power supply failure during a charging session, the control board is able to operate for a fixed time interval of 3 minutes via a 24 V DC power supply provided by the backup battery.
 - If the plug is connected and the charging is in progress, 3 alarm beeps will be emitted, the power contactor opens, the light turns green, the LEDs turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the power contactor closes, the light turns blue, the LEDs turn on, the charging restarts, the display will show [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION] and counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF], the plug is released and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume; if the plug is inserted, you hear 3 beeps and the display will show [UNKNOWN USER, SHOW CARD] or [NO AUTHORIZATION, SHOW CARD] if NET; when the card is presented a new charging session will start.
 - If the plug is connected and the charging is suspended, 3 alarm beeps will be emitted, the power contactor stays open, the light stays green, the LED blue keep flashing, the with LED turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the white LED turns on, the display will show [WAITING FOR VEHICLE] and if the charging restarts, the counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF], the plug is released and the system goes into

shutdown; when the power supply restores, the system reboots, all the station functions will resume; if the plug is inserted, you hear 3 beeps and the display will show [UNKNOWN USER, SHOW CARD] or [NO AUTHORIZATION, SHOW CARD] if NET; when the card is presented a new charging session will start.

Mains power supply failure without plug connected

See page 15.

RCBO fault without plug connected

See page 15.

Periodic tests

See page 15.

3.2.3 PERSONAL with plug/lid LOCKING

Under normal operating conditions the charging is stopped by showing the same card used for the user identification, that also allows the lid unlocking, the access to the socket and the releasing of the plug anti-extraction system.

At the start-up, after the control procedure, the light is green, the white LED is on, the display shows [SHOW CARD, P, DATE, TIME] where P indicates that the current mode is PERSONAL.

Normal operation



- Show user card to the RFID reader.

If a registered card is shown (see PROGRAMMING section), you hear 1 confirmation beep, the locking of the lid opens (the lid is released) and the display shows [PLUG IN].





- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the anti-extraction locking mechanism is activated (it closes and the plug is locked), the power contactor closes, the light turns blue, the blue led turns on, the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.
 - If the lid is opened and closed without inserting a plug or if the lid is not opened within one minute, you hear 3 alarm beeps, the locking of the lid closes (the lid is locked), the display shows [CHARGE DELETED] and then goes back to the initial display data.
 - In case of german socket outlet, after the plug insertion, the display shows [CLOSE THE LID]. When the lid is closed, the lid is locked and the charge can start.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.



- Show the user card to the RFI reader.
 - The charging ends by presenting the same card as previously shown, you hear 1 confirmation beep, the display reads [END OF CHARGE, WAITING], the power contactor opens, the anti-extraction locking mechanism is deactivated (it opens and the plug is released), the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG].
 - If the same card used for unlocking the lid is not shown, 1 alarm beep is emitted, the system status remains unchanged as well as the data on the display.
 - If the card is shown the charge being suspended, the display will show immediately [END OF CHARGE, UNPLUG].



- Remove the plug and close the lid.
 - When the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - When the lid is closed, the locking of the lid closes.

Note: in case of missing of the User Card, the Master Card can be used as emergency unlocking.

Anomalies before charging

ID unknown

- If a card not registered or a card already used to engage another socket in case of NET, is shown, you hear 3 alarm beeps, the display shows [USER UNKNOWN] or [NO AUTHORIZATION, SHOW CARD] if NET, and then it goes back to the initial display info.

RC anomaly (no Resistor Coding)

- If a 3C or type 2 plug without Resistor Coding is plugged in, you hear 3 alarm beeps, the display shows [UNEXPECTED CABLE, UNPLUG] until the removal of the plug.

PWM anomaly (short-circuit on Control Pilot)

- If a plug is inserted in a vehicle having a short circuited CP control, you hear 3 alarm beeps, the display shows [VEHICLE DISCONNECTED, UNPLUG] until the plug is withdrawn.

Lock (retaining device) NOT activated

- If the plug is incorrectly connected and the retaining device is not in proper position, 2 alarm beeps will be emitted, the display shows (WAITING FOR VEHICLE), the system attempts to drive the retaining device into proper position and the display therefore reads (UNEXPECTED PLUG) (UNPLUG) until the withdrawal of the plug and then [CHARGE DELETED]; we recommend to insert again the plug into the socket and press hard.

Anomalies during charging

See page 30.

No mains power supply

- In case of external power supply failure during a charging session, the control board is able to operate for a fixed time interval of 3 minutes via a 24 V DC power supply provided by the backup battery.
 - If the plug is connected and the charging is in progress, 3 alarm beeps will be emitted, the power contactor opens, the light turns green, the LEDs turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts

about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the power contactor closes, the light turns blue, the LEDs turn on, the charging restarts, the display will show [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION] and counts resume the previous values.

- If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF], the plug is released and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume; if the plug is inserted, you hear 3 beeps and the display will show (UNKNOWN USER, UNPLUG) or [NO AUTHORIZATION, UNPLUG] if NET; when the plug is removed a new charging session can start but the user identification must be repeated (SHOW CARD).
- If the plug is connected and the charging is suspended, 3 alarm beeps will be emitted, the power contactor stays open, the light stays green, the LED blue keep flashing, the white LED turn off, the display reads [MAINS BREAKDOWN, POWER OFF IN 3:00], the countdown goes on until the power supply restoration, while the counts about charging duration and energy consumption will stop; if the external power supply is restored within the fixed time interval, 3 confirmation beeps will be emitted, the white LED turns on, the display will show [WAITING FOR VEHICLE] and if the charging restarts, the counts resume the previous values.
 - If the power supply will not be restored and the timeout will expire, 2 confirmation beeps are emitted, the display shows [POWER OFF], the plug is released and the system goes into shutdown; when the power supply restores, the system reboots, all the station functions will resume; if the plug is inserted, you hear 3 beeps and the display will show (UNKNOWN USER, UNPLUG) or [NO AUTHORIZATION, UNPLUG] if NET; when the plug is removed a new charging session can start but the user identification must be repeated (SHOW CARD).

Mains power supply failure without plug connected

See page 15.

RCBO fault without connected plug connected

See page 15.

Periodic tests

See page 15.

3.3 NET MODE

In this mode, the station allows the charging only to authorized users, whose identification code, contained in a RFID card, is recorded in the memory of the server, by passing their user badge over the appropriate card reader.

However the charging can start only if the plug connected to the socket outlet is properly wired and the vehicle is equipped with a control pilot circuit according to Annex A of IEC/EN 61851-1, required for the charging in mode 3.

3.3.1 NET without LOCKING

Under normal operating conditions the charging is stopped by using the same card or by removing the plug under load.

At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, N.x, DATE, TIME] where N indicates that the current mode is NET and the following number is the IP address of the station.

Normal operation



- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, the system asks the user to identify himself, you hear 3 beeps and the display will show [NO AUTHORIZATION, SHOW CARD].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.



- Show user card to the RFID reader.
 - If a registered card is shown (see MANAGEMENT SYSTEM section), you hear 1 confirmation beep, the display shows [WAITING FOR NET] and then [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the power contactor closes, the light turns blue, the blue led turns on and the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a registered card is not shown within one minute, you hear 3 alarm beeps, the display shows [NO AUTHORIZATION, UNPLUG] until the plug will be removed.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.



- Remove the plug and close the lid.
 - The charging ends by presenting the same card as previously shown, you hear 1 confirmation beep, the display reads [END OF CHARGE, WAITING], the power contactor opens, the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG]; when the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the same card used for engaging the socket is not shown, 1 alarm beep is emitted, the system status remains unchanged as well as the data on the display.
 - If the plug is withdrawn during charging, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led turns off, the display briefly reads [VEHICLE DISCONNECTED] and then for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the plug is disconnected the charge being suspended, the display will show for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

Anomalies before charging

See page 23.

Anomalies during charging

See page 23.

Mains power supply failure without plug connected

See page 15.

RCBO fault without plug connected

See page 15.

Periodic tests

See page 15.

3.3.2 NET with plug LOCKING

Under normal operating conditions the charging is stopped by showing the same card used for the user identification, that also allows the releasing of the plug anti-extraction system.

At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, N.x, DATE, TIME] where N indicates that the current mode is NET and the following number is the IP address of the station.

Normal operation



- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, the system asks the user to identify himself, you hear 3 beeps and the display will show [NO AUTHORIZATION, SHOW CARD].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.



- Show user card to the RFID reader.
 - If a registered card is shown (see MANAGEMENT SYSTEM section), you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the anti-extraction locking mechanism is activated (it closes and the plug is locked), the power contactor closes, the light turns blue, the blue led turns on and the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a registered card is not shown within one minute, you hear 3 alarm beeps, the display shows [NO AUTHORIZATION, UNPLUG] until the plug will be removed.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.



- Remove the plug and close the lid.
 - The charging ends by presenting the same card as previously shown, you hear 1 confirmation beep, the display reads [END OF CHARGE, WAITING], the power contactor opens, the anti-extraction locking mechanism is deactivated (it opens and the plug is released), the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG]; when the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If the same card used for engaging the socket is not shown, 1 alarm beep is emitted, the system status remains unchanged as well as the data on the display.
 - If the card is shown the charge being suspended, the display will show immediately [END OF CHARGE, UNPLUG] and then [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].

Note: in case of missing of the User Card, the Master Card can be used as emergency unlocking.

Anomalies before charging

See page 29.

Anomalies during charging

See page 30.

Mains power supply failure without plug connected

See page 15.

RCBO fault without plug connected

See page 15.

Periodic tests

See page 15.

3.3.3 NET with plug/lid LOCKING

Under normal operating conditions the charging is stopped by showing the same card used for the user identification, that also allows the lid unlocking, the access to the socket and the releasing of the plug anti-extraction system.

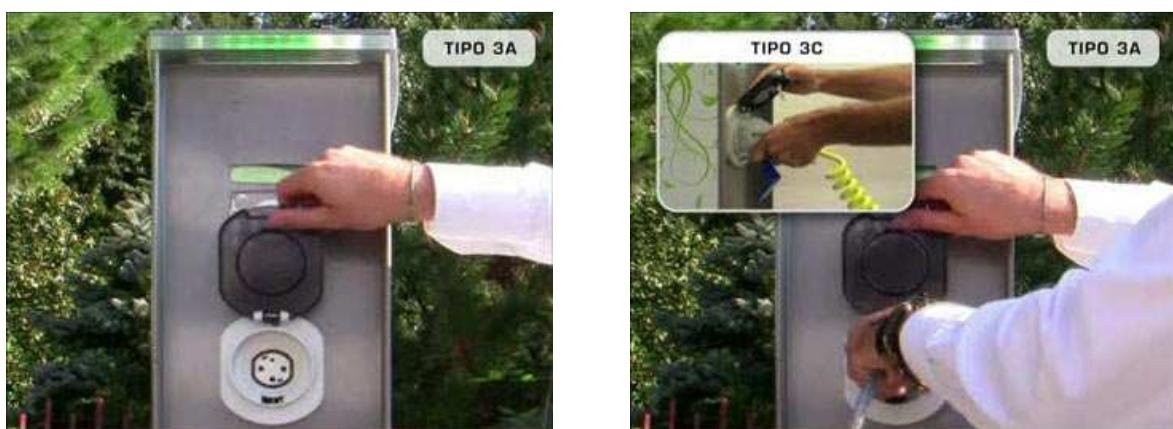
At the start-up, after the control procedure, the light is green, the white LED is on and the display shows [PLUG IN, N.x, DATE, TIME] where N indicates that the current mode is NET and the following number is the IP address of the station.

Normal operation



- Show user card to the RFID reader.

If a registered card is shown (see MANAGEMENT SYSTEM section), you hear 1 confirmation beep, the locking of the lid opens (the lid is released) and the display shows [PLUG IN].





- Open the lid and connect the plug.
 - If a plug of a vehicle equipped with pilot circuit is inserted, you hear 1 confirmation beep, the display shows [WAITING FOR VEHICLE]; when the vehicle returns the status of charging start or if a vehicle without PWM but with pilot circuit is detected, the anti-extraction locking mechanism is activated (it closes and the plug is locked), the power contactor closes, the light turns blue, the blue led turns on, the display shows [CHARGE, MAXIMUM CABLE CURRENT, MAXIMUM CHARGING CURRENT, SET CURRENT, CURRENT CONSUMPTION, TIME OF CHARGING, ENERGY CONSUMPTION].
 - If a plug of a vehicle without control circuit is connected, the charge doesn't start.
 - If the lid is opened and closed without inserting a plug or if the lid is not opened within one minute, you hear 3 alarm beeps, the locking of the lid closes (the lid is locked), the display shows [CHARGE DELETED] and then goes back to the initial display data.
 - In case of german socket outlet, after the plug insertion, the display shows [CLOSE THE LID]. When the lid is closed, the lid is locked and the charge can start.



The mark - indicates a vehicle with PWM



The mark * indicates a vehicle without PWM



- During charging.
 - If the vehicle communicates the state of full charge, you hear 1 confirmation beep, the power contactor opens, the light turns green, the blue led is flashing, the display shows [SUSPENDED CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION] until the vehicle asks for charging again or until plug removing.



- Show the user card to the RFI reader.
 - The charging ends by presenting the same card as previously shown, you hear 1 confirmation beep, the display reads [END OF CHARGE, WAITING], the power contactor opens, the anti-extraction locking mechanism is deactivated (it opens and the plug is released), the light turns green, the blue led turns off, the display shows [END OF CHARGE, UNPLUG].
 - If the same card used for unlocking the lid is not shown, 1 alarm beep is emitted, the system status remains unchanged as well as the data on the display.
 - If the card is shown the charge being suspended, the display will show immediately [END OF CHARGE, UNPLUG].



- Remove the plug and close the lid.
 - When the plug is removed, the display shows for a few seconds [END OF CHARGE, TIME OF CHARGING, ENERGY CONSUMPTION].
 - When the lid is closed, the locking of the lid closes.

Note: in case of missing of the User Card, the Master Card can be used as emergency unlocking.

Anomalies before charging

See page 36.

Anomalies during charging

See page 36.

Mains power supply failure without plug connected

See page 15.

RCBO fault without plug connected

See page 15.

Periodic tests

See page 15.

4 TECHNICAL CHARACTERISTICS AND INSTALLATION INSTRUCTIONS

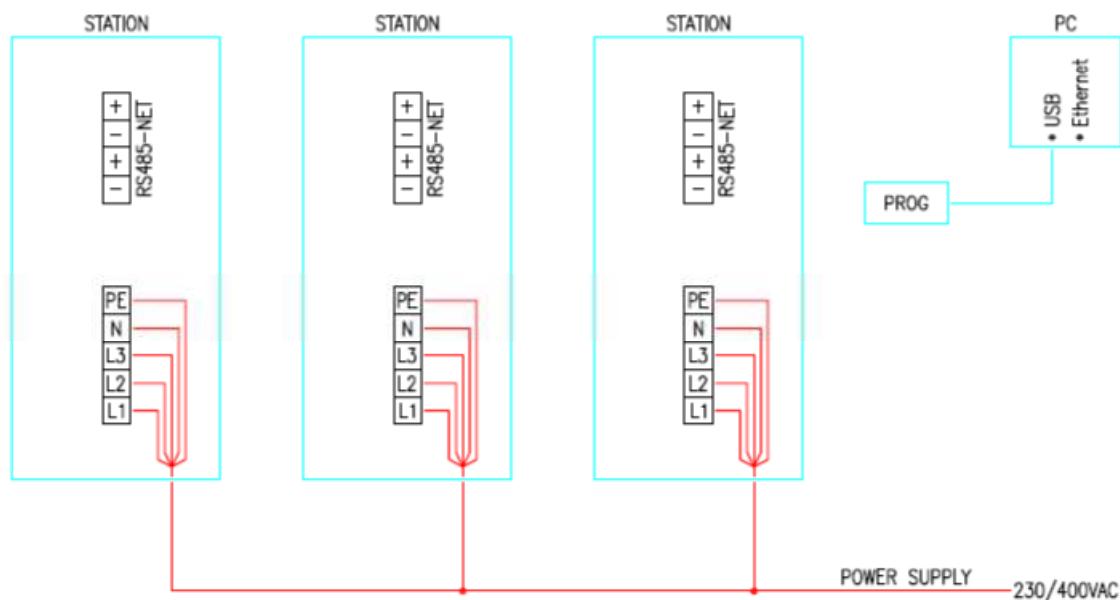
Power supply: 230 V single-phase (1P+N+PE), 400 V three-phase (3P+N+PE); Frequency: 50/60 Hz

Output voltage: 230 V single-phase (1P+N+PE), 400 V three-phase (3P+N+PE)

Earthing system arrangement: TT, TN(C), TN(S)

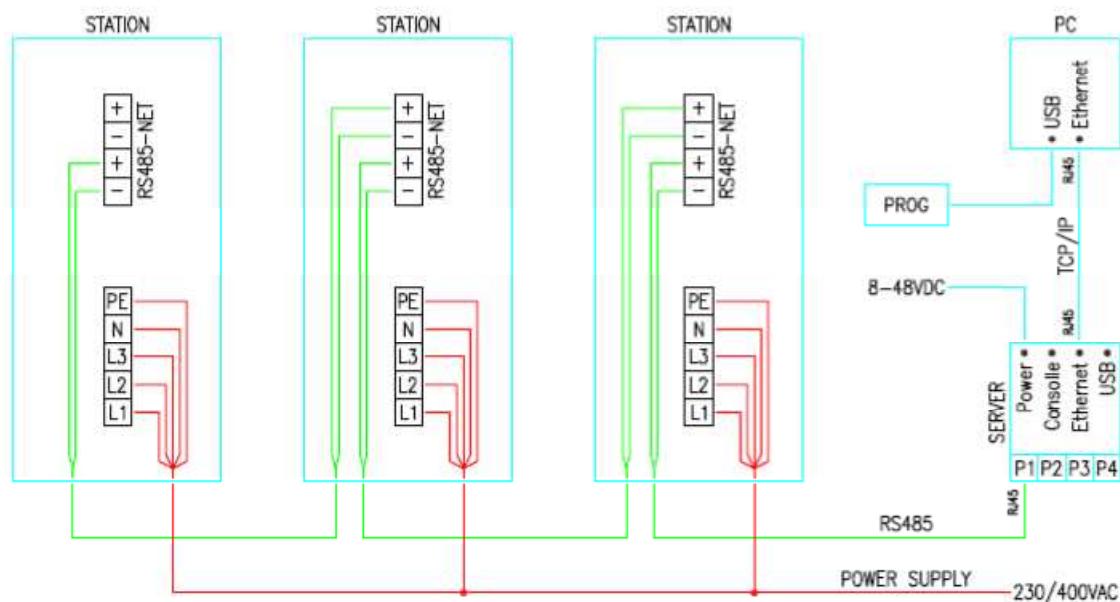
Operating temperature: -25 °C +40 °C; Protection indices: IP44-IP54, IK07-IK10.

4.1 STAND-ALONE (FREE and PERSONAL MODE)



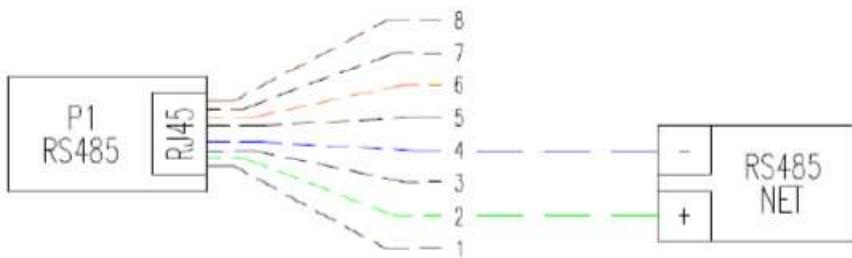
Carry out the power supply connection using a wiring gauge suitable for the load.

4.2 LOCAL NET (NET MODE)



Carry out the RS 485 serial link (max length. 100 m) using Belden 9841 type cable.

4.2.1 Serial connection from SERVER (P1) to CHARGING STATION (RS485)



4.3 SIZE OF POWER SUPPLY CONDUCTORS

SOCKET-OUTLETS				STATION		POWER LINE	
Number and type of socket-outlets	Rated voltage (Vac)	Rated current (A)	Rated power (kW)	Rated voltage (Vac)	Rated current (A)	Cable Size (mm ²)	Max length (m)
n.1 (3A, 3C, T1, T2, Unel)	230	16	3,5	230	16	3G4	50
n.1 (3C, T1, T2)	230	32	7	230	32	3G6	40
n.1 (3C, T2)	400	32	22	400	32	5G6	80
n.1 (T2)	400	63	44	400	63	5G16	105
<hr/>							
n.2 (3A, 3C, T1, T2, Unel)	230	16	3,5	230	32	3G6	40
n.2 (3A, 3C, T1, T2, Unel)	230	16	3,5	400	16	5G4	105
<hr/>							
n.1 (3C, T1, T2)	230	32	7	400	32	5G6	80
n.1 (3A, Unel)	230	16	3,5				
n.1 (3C, T1, T2)	230	32	7	400	32	5G6	80
n.1 (3C, T1, T2)	230	32	7				
<hr/>							
n.2 (3C, T1, T2)	230	32	7	400	32	5G6	80
n.2 (3A, Unel)	230	16	3,5				
<hr/>							
n.1 (3C, T2)	400	32	22	400	50	5G10	115
n.1 (3A, Unel)	230	16	3,5				
n.1 (3C, T2)	400	32	22	400	63	5G16	105

Notes:

- The values are calculated considering FG7OR 0,6/1kV type power cable and voltage drop less than 4%.
- The designer of electrical power system is the only responsible for the size of cables and the installed power definition.

4.4 CALCULATION OF INSTALLED MAX POWER

No. of main power circuits	Contemporary factor
2 or 3	0,9
4 or 5	0,8
6 to 9	0,7
10 and over	0,6

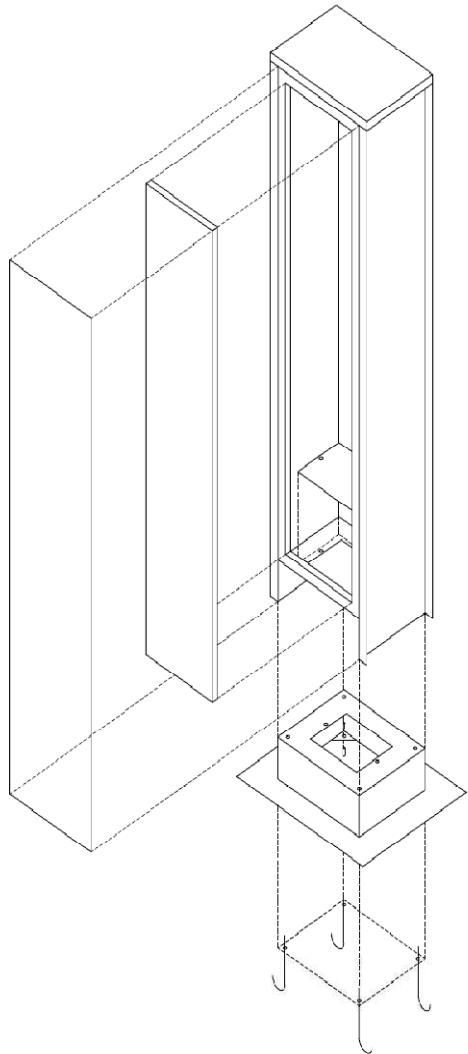
Power = no. stations x station power x contemporary factor.

4.5 CONDUITS DIAMETER

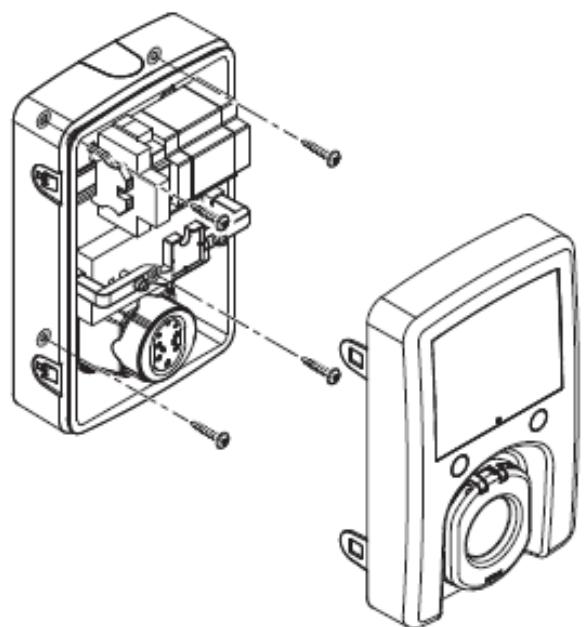
Diameter (mm)	50	63	75	90	110
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Notes:

- To be used depending on the cable cross-section.
- In case of RS485 serial communication link (BELDEN 9841 type cable max 100m) two separated conduits for power cables and communication cables have to be installed.

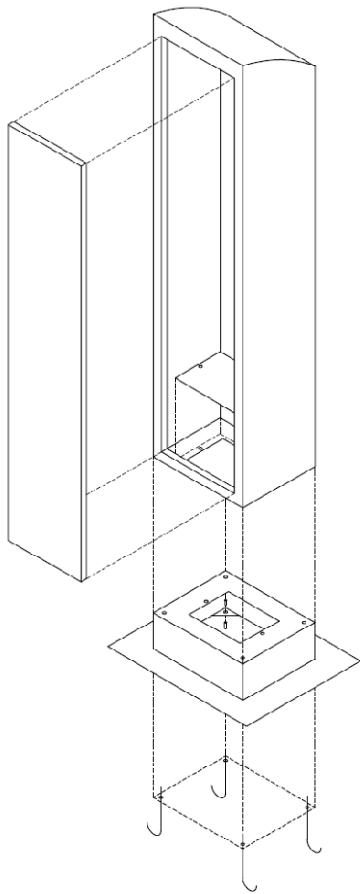
5 INSTALLING INSTRUCTIONS

204.CAXXX

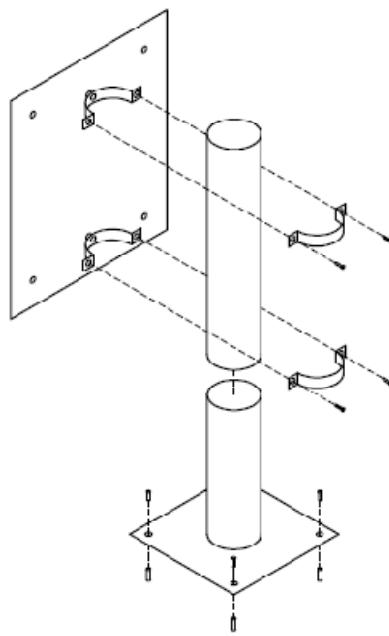
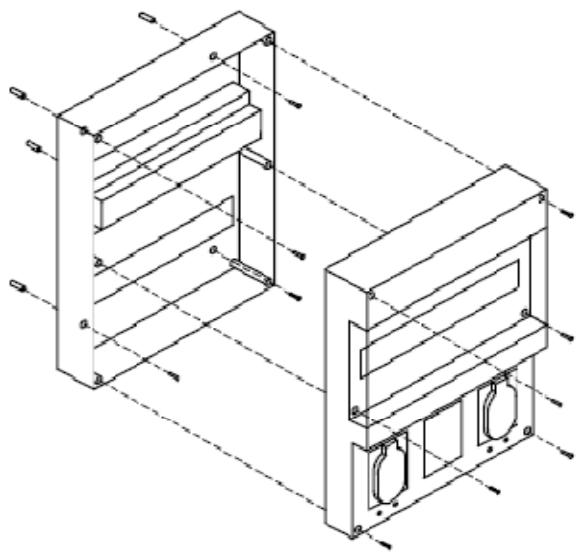


204.WBXXX

204.CBXXX



204.UBXXX



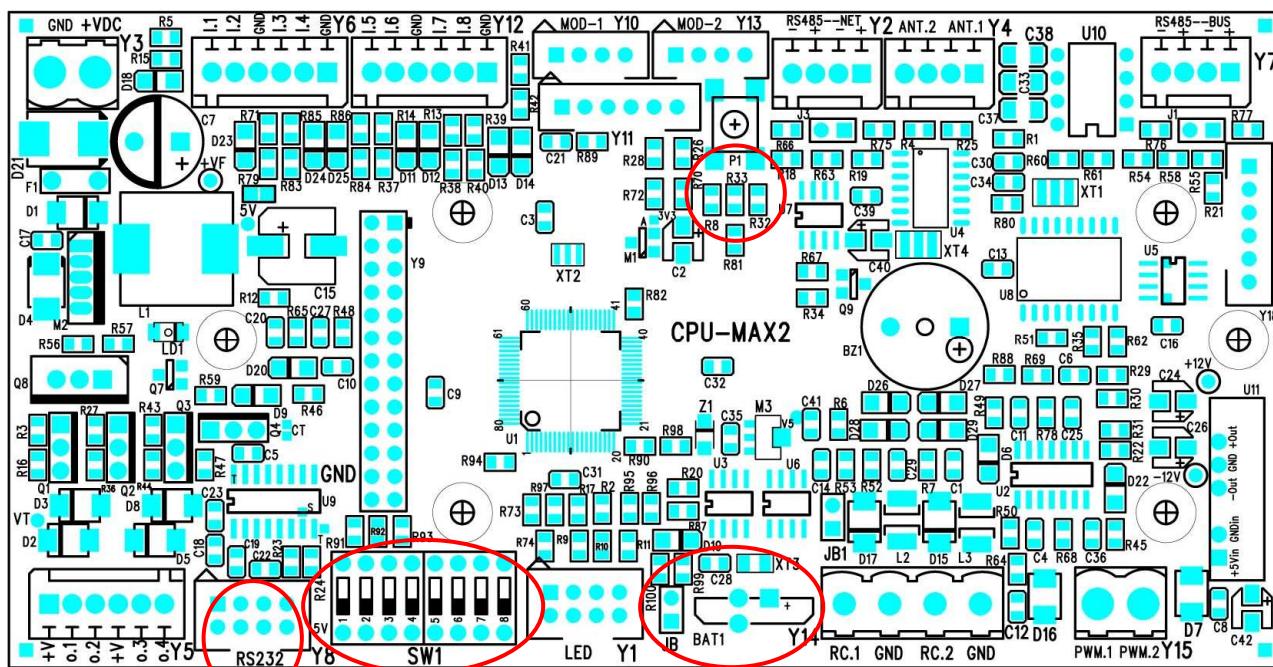
6 ELECTRONIC CONTROL CARD CONFIGURATION

The control card, depending on the version, consists of 3 parts and can supervise up to 2 sockets:

- Basic card (CPU): PWM circuit, Resistor Coding, power contactor control, energy measurement, RFID identification, serial communication port, status LEDs supervision.
- Expansion card: plug anti-extraction lock commands, LCD display, emergency power supply, warning lights supervision.
- Welded contacts control card: check the power contactor opens correctly and the contacts are voltage-free.

The cards and their functions can be set up via a series of switches and jumpers and using a configurator by PC (SLSetup software tool supplied with the programmer 208.PROG).

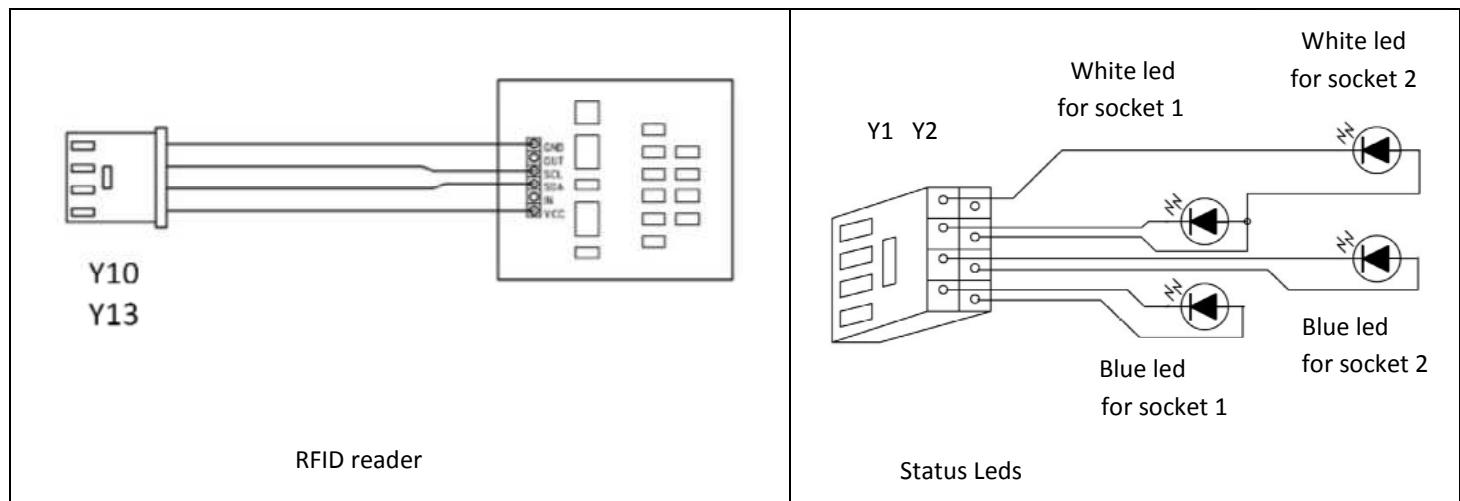
6.1 BASIC CARD (208.BAS)



6.1.1 CONNECTIONS

Y3 - 24Vdc power supply	Y10 - RFID reader 1	O.2 - Power contactor 2
Y6 - 4 digital inputs	Y13 - RFID reader 2	O.3 - Shunt trip release for breaker I1
I.1 - Pulse meter 1/mirror K1	Y2 - RS485 for NET link	O.4 - Shunt trip release for breaker I2
I.2 - Pulse meter 2/mirror K2	Y4 - Antennas RFID 1 and RFID 2	LD1 - Status LED
I.3 - Socket 1 push button	Y7 - RS485 BUS for digital counters	BZ1 - Buzzer
I.4 - Socket 2 push button	Y15 - PWM 1 and PWM 2 circuits	P1 - Reset button
Y12 - 4 digital inputs	Y14 - Resistor Coding 1 and 2	BAT1 - Clock battery
I.5 - RCBO 1 trip	Y1 - Status LED for socket 1 and 2	JB - Clock battery enabling
I.6 - RCBO 2 trip	Y8 - RS232 for firmware uploading	J1 - Terminating resistor RS485 BUS
I.7 - Presence of ventilation	Y5 - 4 digital outputs	J3 - Terminating resistor RS485 NET
I.8 - Spare	O.1 - Power contactor 1	

6.1.2 WIRING



6.1.3 DIP SWITCHES SW1

1	Off:	PERSONAL Mode	On:	FREE Mode
2	Off:		On:	NET Mode
3	Off:	-	On:	Counters simulator
4	Off:	-	On:	Power contactor control: welded/mirror contacts
5	Off:	-	On:	Charging restart after power failure
6	Off:	-	On:	-
7	Off:	-	On:	Restarting for periodic tests
8	Off:	-	On:	Firmware uploading

- 1) Sets the operating mode of the charging station.
- 2) Sets the operating mode of the charging station.
- 3) Enables or disables a simulated charging current (to be used only for testing/appearance, default: Off).
- 4) Enables or disables the power contactor control (on both sockets) by the welded/mirror contacts (to be used only if the COIMP card or the contactors with mirror function are equipped).
- 5) Enables or disables the charging restart (on both sockets) in case of power supply restoration (to be used only if the backup batteries are equipped or the external 24 Vdc emergency voltage is provided).
- 6) Spare.
- 7) Enables or disables the REBOOT for periodic tests (on both sockets) at 00:00 (default: On).
- 8) Enables or disables the upload of the firmware (default: Off).

6.1.4 JUMPERS

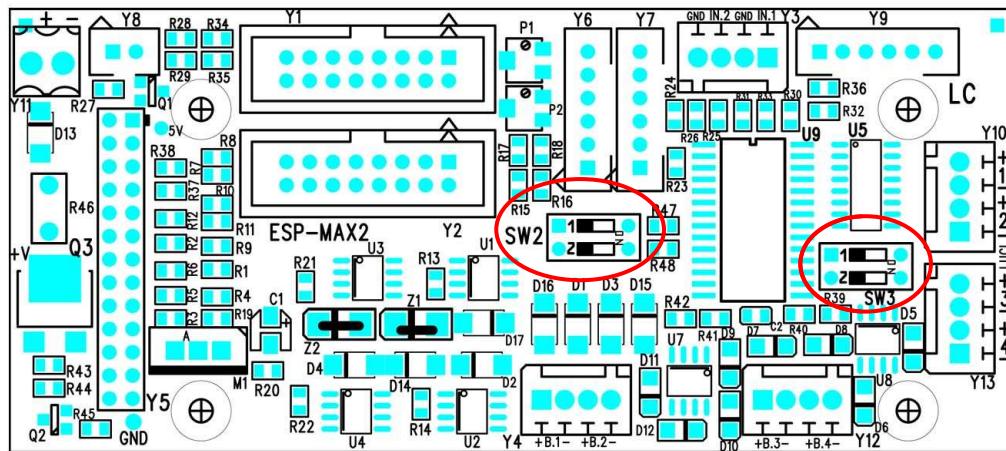
JB: clock battery enabling (to be used with NET or PERSONAL mode).

J1: terminating resistor RS485 BUS (to be used in case of last charging station).

J3: terminating resistor RS485 NET (to be used in case of two digital counters).

Note: each change in the switches/jumpers status must be done without voltage.

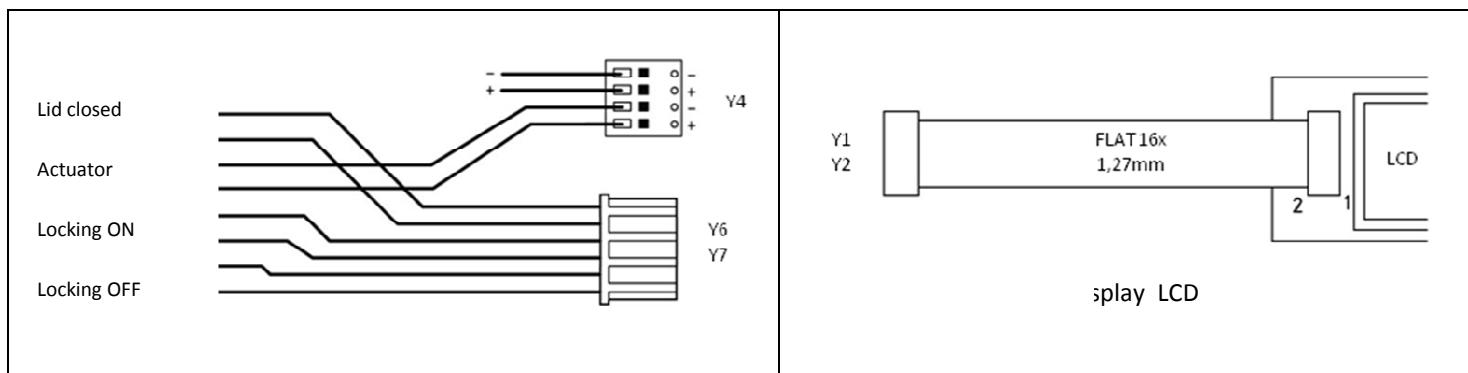
6.2 EXPANSION CARD (208.EXP)



6.2.1 CONNECTIONS

Y11 - Battery 24 Vdc	2 - Lock 1 activated (On)	3 - Lock 2 deactivated (Off)
Y1 - Display LCD 1	3 - Lock 1 deactivated (Off)	Y4 - 2 digital outputs ±12Vdc
Y2 - Display LCD 2	Y7 - 3 digital inputs	B.1 - Lock actuator 1
Y6 - 3 digital inputs	1 - Lid 2 closed	B.2 - Lock actuator 2
1 - Lid 1 closed	2 - Lock 2 activated (On)	

6.2.2 WIRING



6.2.3 DIP SWITCHES SW2

1	Off:	LID LOCKING OFF	On:	LID LOCKING ON
2	Off:	-	On:	-

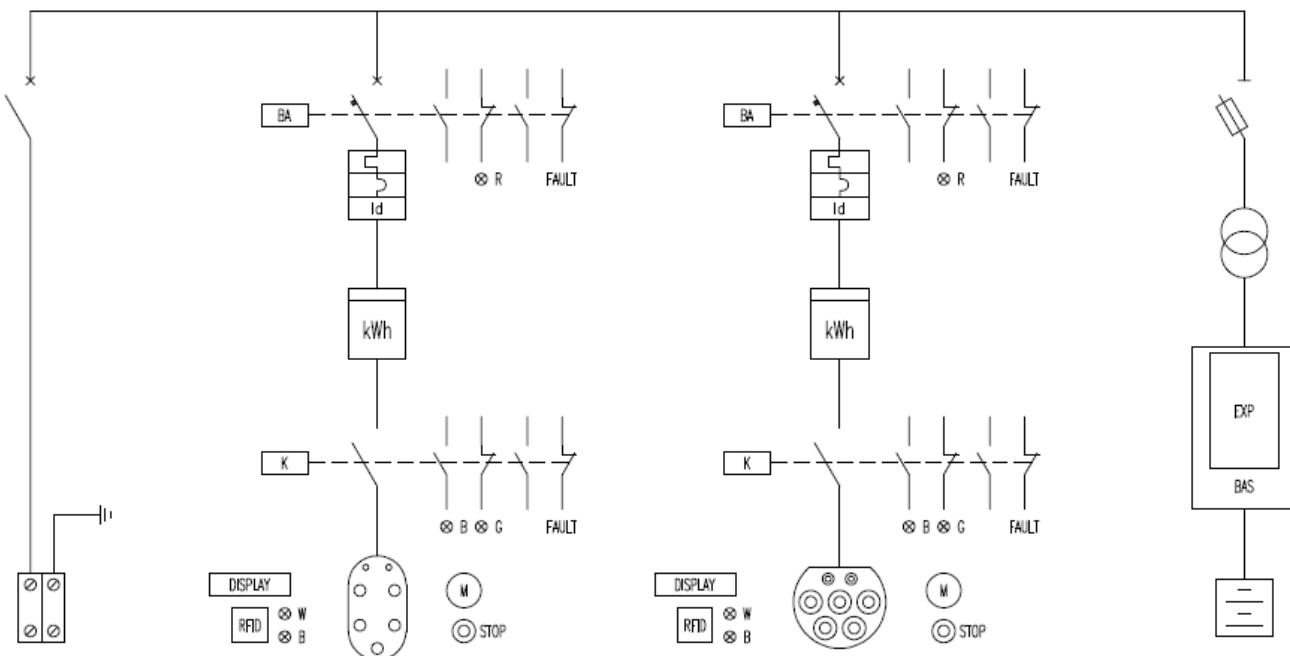
- 1) Enables or disables the command of lid locking on both sockets (the value is factory set and it can be modified).
- 2) Spare.

6.2.4 DIP SWITCHES SW3

1	Off:	Digital counters delay ON	On:	Digital counters delay OFF
2	Off:	DIAGNOSTIC OFF	On:	DIAGNOSTIC ON

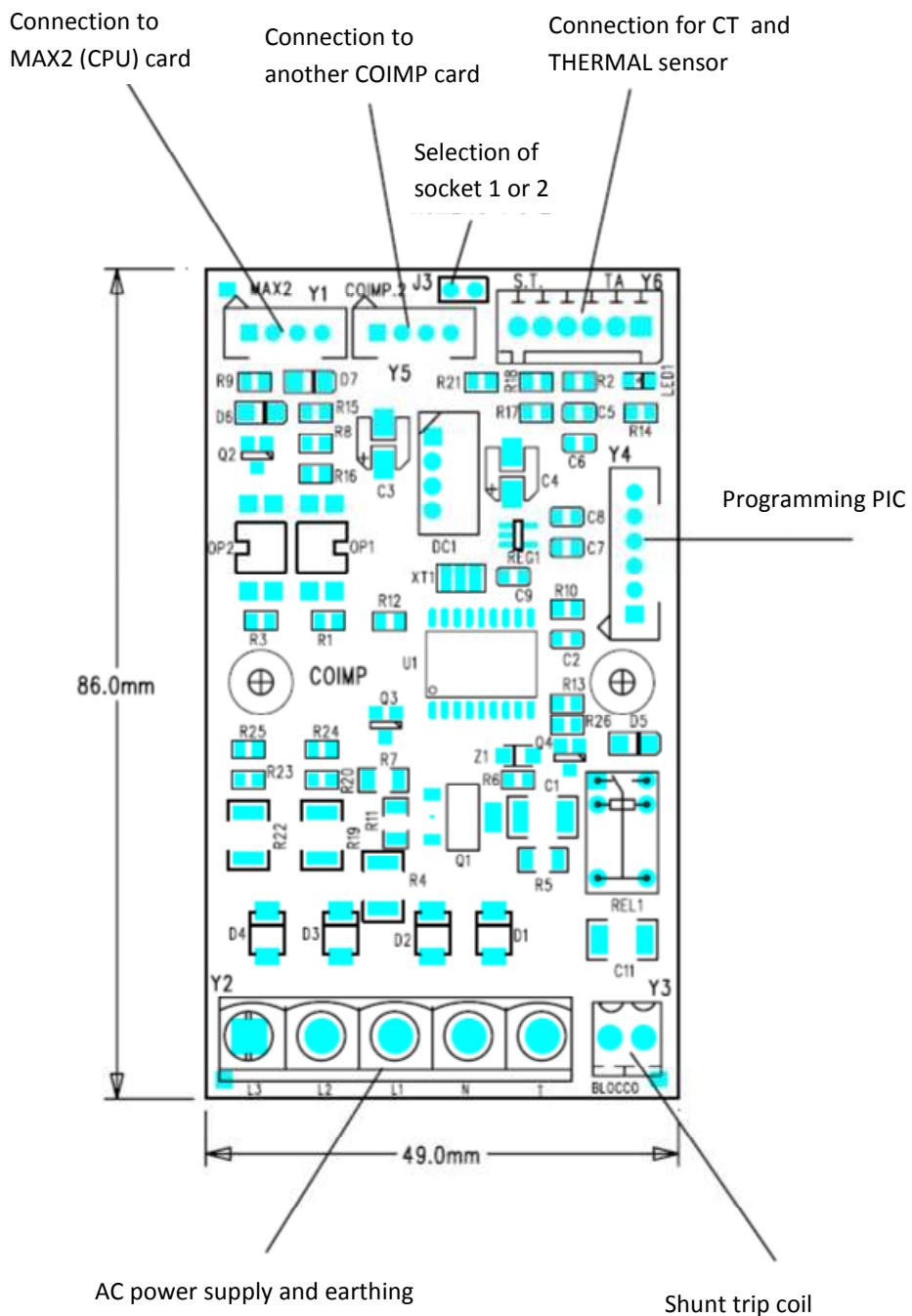
- 1) Enables or disables the 30 s delay at start up (to be used only in case of test, default: On)
- 2) Enables or disables the diagnostic test (to be used only in case of test, default: Off).

6.2.5 TYPICAL FUNCTIONAL DIAGRAM



(For more details please see the electrical diagram provided with documents.)

6.3 WELDED CONTACTS CARD (COIMP)



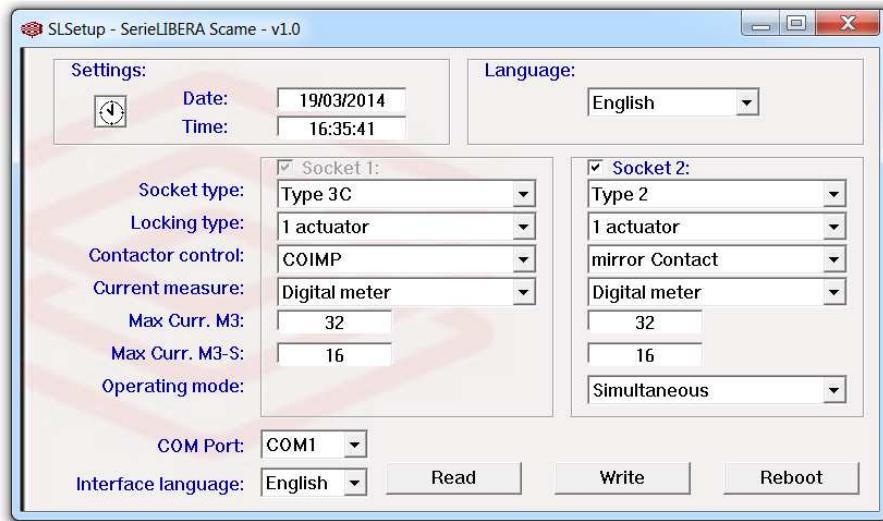
Jumper J3: allows to link the card to a socket; if it's open it means the COIMP card is selected for the socket no. 1 (LED1 on), if it's closed the COIMP card refers to the socket no. 2 (LED1 off). The jumper is factory set and must not be changed.

6.4 CONFIGURING SOFTWARE (Tool SLSetup)

The software SLSetup allows the configuration of the charging station, passing the data to the control card: the values are factory assigned and in general can not be modified. If necessary, the user can change some settings such as Date, Time, Language (messages shown on the LCD display), interface language and the maximum current that can be delivered by each socket and therefore by the whole charging station.

That is done by connecting the control card (via the RS232 port) to the PC (direct coupled on a free port COM or through a RS232-USB converter) and using the special cable provided with RFID writer:

- Install the driver of RS232-USB converter if requested.
- Connect the special RS232 cable between the control card and the PC/converter.
- Run SLSetup_vx.x.exe.
- Select the port COM assigned to the device.
- Set the parameters to required values.
- Click **Write** to store the configuration on the control card and then click **Reboot**.



User may also check the station configuration depending on the installation set-up, showing the factory settings by clicking on **Read**; the parameters can get the permitted values:

- ✓ **Date:** dd/mm/yyyy³
- ✓ **Time**⁴: hh:mm:ss
- ✓ **Language:** Italian, English, Spanish, French
- ✓ **Socket type:** Type 1, Type 2, Type 3A, Type 3C, Domestic
- ✓ **Locking type:** None, 1 actuator, 2 actuators
- ✓ **Contactor control:** None, COIMP, mirror Contact
- ✓ **Current measure:** No meter, CT meter, Pulse meter, Digital meter
- ✓ **Max. Curr. M3**⁵: 6 - 63 (If the ZE Ready 1.2 label applies , the delivered current must not be lower than 8 A single-phase or 14 A three-phase)
- ✓ **Max. Curr. M3-S**⁵: 6 - 16
- ✓ **Operating mode**⁶: Alternate, Simultaneous
- ✓ **COM Port:** COM1, COM2,, COM9
- ✓ **Interface language:** Italiano, English, Español, Français

Notice: the **Reboot** button causes an hardware reset of the control card.

³ The year parameter in the Date field can range from 2014 to 2100.

⁴ To synchronise current time and date with PC, click on the icon clock.

⁵ According to the Chapter 1, M3 means the charging mode 3 while M3-S refers to the simplified mode 3.

⁶ In general the operating mode is the Simultaneous type.

7 POWER ON/OFF PROCEDURE

Depending on the version the charging stations are delivered pre-set. To power on:

- Close the main switch.
- Close the RCBO circuit breakers for the sockets protection.
- Close the fuse-holder switch for auxiliary circuits protection.
 - If the RCBO circuit breakers are closed correctly, the light is green.
 - If the RCBO circuit breakers are not closed correctly, the light is red.
- You hear 1 confirmation beep, the display shows the installed firmware release.
- You hear 1 confirmation beep, the white led is off or flashing (if the 30 s delay at start-up is enabled), the display shows [SOCKET N.x (Y) Z, CHECK IN PROGRESS] where x indicates the number of socket (1,2), Y indicates the type of socket (A=Type 1, B=Type 2, C=Type 3A, D=Type 3C, E=Domestic) and Z indicates the type of energy meter (N= No meter I=Pulse meter, D=Digital meter, T=CT meter).
 - If the check is successful, you hear 1 or 2 beeps depending on the number of digital meters detected, the white led turns on, the display shows a message depending on the selected working mode (F is for FREE, P is for PERSONAL, N.x is for NET and x is the IP address of the station).
 - If a malfunction is detected, 3 alarm beeps are emitted, the white led is off, the display shows:
 - [R.F. reader, OUT OF ORDER]
 - [ENERGY METER, OUT OF ORDER]
 - [COIMP CARD, OUT OF ORDER]
 - [CONTACTOR FAILURE, OUT OF ORDER].
- If the RCBO circuit breakers of the sockets are not closed properly, you hear 3 alarm beeps, the display shows [RCBO FAULT, OUTOF ORDER] until their activation.
- If a socket was out of order resulting from a failure/malfunction condition, it is no longer usable until normal operating conditions are restored (see Periodic tests section according to the operating mode).

At first start-up in PERSONAL mode after the database deletion (see RESET section) it is necessary to register the Master Card in the memory of the control card.

- The white led is flashing quickly, the display shows [SHOW, MASTER CARD].
 - If the Master Card is shown, you hear 1 confirmation beep, the blue led flashes 1 time, the display shows for a few seconds [SAVED], the system passes to next step [see PROGRAMMING section].
 - If the Master Card is not shown, the system keeps waiting.

At first start-up in NET mode after the IP address deletion (see RESET section) the display shows [PLUG IN, N--, DATE, TIME] where N-- indicates that the current mode is NET and the IP address of the station is set to the default value (1).

To power-off the station:

- Open the fuse-holder switch for auxiliary circuits protection.
- Open the RCBO circuit breakers for the sockets protection.
- Open the main switch.

When the control card is turned off, 2 confirmation beeps are emitted and the display reads [---POWER OFF---].

8 PROGRAMMING (user cards registering)

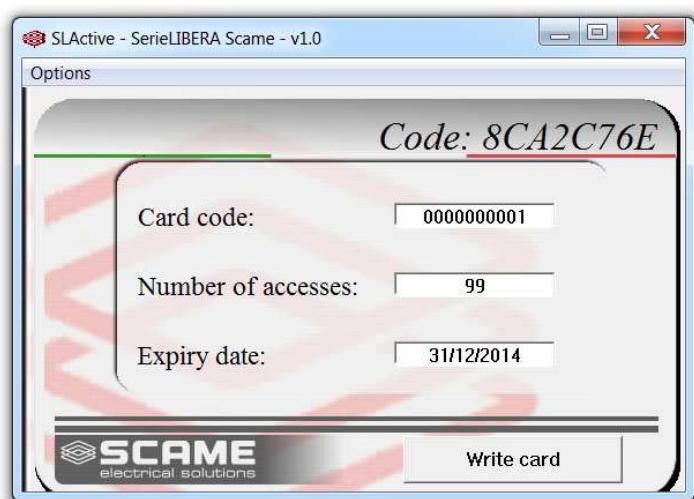
In PERSONAL mode, if no socket is engaged, when the Master Card is shown the system goes to the programming procedure for registering new user cards in the memory of the control card.

- If the Master Card is shown, you hear 1 confirmation beep, the white led blinks, the display shows for a few seconds [SET UP] and then [SHOW, USER CARD].
 - If a new User Card is shown, you hear 1 confirmation beep, the blue led is blinks 1 time, the display shows for a few second [SAVED].
 - If a User Card already saved is shown, you hear 3 alarm beeps, the blue led flashes 3 times, the display shows [ALREADY SAVED, DELETE USER?].
 - If the same User Card is shown, you hear 1 confirmation beep, the blue led flashes 1 time, the display shows for a few second [DELETED] and then [SHOW, USER CARD].
 - If a User Card is not shown within a few seconds, the display briefly reads [END OF SET UP], the white led turns on and the display goes back to the initial display info.
 - If at least one User Card is not registered, the system keeps waiting.

8.1 ACTIVE CARD (Tool SLActive)

Each User Card can be written with an expiry date⁷ and/or a limited number of access by using the 208.PROG device with tool SLActive, connected to your PC:

- Install the drivers of device.
- Connect the device to USB port.
- Run SLActive_vx.x.exe.
- Select the port COM assigned to the device.
- Put the card on device.
- Set the parameters to required values.
- Write the information on the card.



⁷ The year parameter in the Expiry date field can range from 2014 to 2099.

The station operation is the same as described in PERSONAL mode having some difference.

- PERSONAL mode without LOCK and with PLUG lock.
 - If a User Card is shown without a plug inserted into the socket, you hear 1 confirmation beep, the display briefly reads:
 - [EXPIRY: dd/mm/yyyy, No. of CHARGES: xxxx] or [EXPIRY: dd/mm/yyyy] or [No. of CHARGES: xxxx]
 - If a plug is connected and an expired card or a card without usable charges is shown, you hear 3 alarm beeps, the display shows for a few seconds:
 - [EXPIRED CARD, UNPLUG] or [END OF USABLE CHARGES, UNPLUG].
- PERSONAL mode with LOCK plug/lid.
 - If a valid card is shown, you hear 1 confirmation beep, the display shows [EXPIRY: dd/mm/yyyy, No. of CHARGES: xxxx], show the card once again to open the lock of the lid and then the display will read [PLUG IN, ex: dd/mm/yyyy n:xxxx-1].
 - If a valid card is shown but not having usable charges, you hear 3 alarm beep, the display shows for a few seconds [END OF USABLE CHARGES, ex: dd/mm/yyyy n: 0000].
 - If an expired card is shown, you hear 3 alarm beep, the display shows for a few seconds [EXPIRED CARD, ex: dd/mm/yyyy n: xxxx].

8.2 CLOCK SETTING

For a proper operation of Active Card each station has an internal clock fed by a backup battery.

In case of station connected to the server, the clock and date setting is provided via server (see MANAGEMENT SYSTEM section). In case of stand-alone station the clock must be set manually by using the tool SLSetup (see par. 6.4).

8.3 RESET

Push and hold the reset button on the card to cancel the internal database (Master and User Cards) and to restore the default IP address (1).

During the pressing you hear a continuous beep until the reset occurred, the white LED and blue LED turn on, the display shows for a few seconds [MEMORY DELETED, ADDRESS RESET].

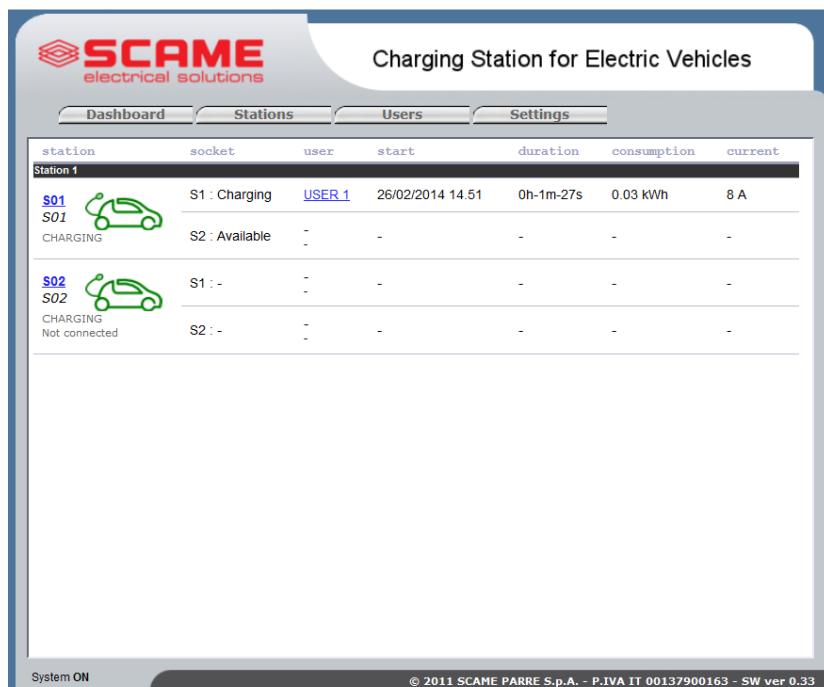
The system restarts depending on the operating mode set (see ON/OFF PROCEDURE section).

9 MANAGEMENT SYSTEM

The management system of SCAME charging stations doesn't require software installation because the program is already installed into the server.

- Connect the server to the serial line RS485 that comes from stations (max. 32).
- Connect the server to the computer/local net through port TCP/IP.
- Set IP address of the server (see SETTINGS paragraph).
- With an internet browser access to IP address of the server.

9.1 DASHBOARD



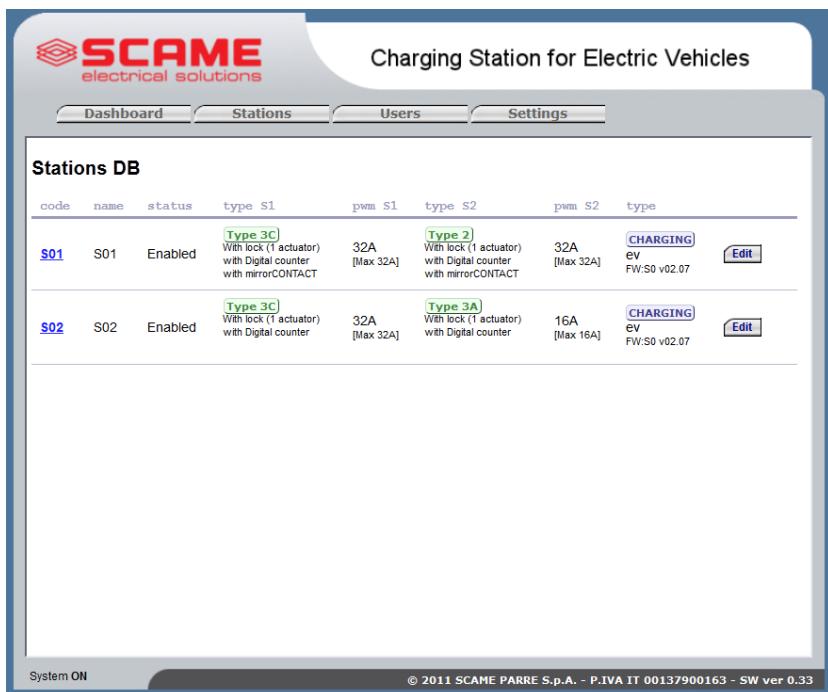
station	socket	user	start	duration	consumption	current
Station 1						
S01 S01 CHARGING	S1 : Charging	USER_1	26/02/2014 14.51	0h-1m-27s	0.03 kWh	8 A
	S2 : Available	-	-	-	-	-
S02 S02 CHARGING Not connected	S1 : -	-	-	-	-	-
	S2 : -	-	-	-	-	-

In this page it's possible to view in real time the socket-outlets status of the connected charging stations, including any malfunction/fault.

- If the socket is not in use, the "Available" status is shown.
- If the socket is in use, it is shown the "Charging" status, user name, charging start time, charging duration, total current energy consumption and the instantaneous current.
- If during the charging the RCBO circuit breaker trips due to a short circuit, overload or earth fault, the "RCBO occurred" status will be shown until the breaker reactivation.
- If the charging has been stopped due to a current consumption higher than set by PWM, the "Unexpected load" status will be displayed until plug removing.
- If the charging has been interrupted due to a short circuit of the CP control circuit, the "Unexpected load" status will be shown until plug removing.
- If the charging has been stopped due to a loss of the control circuit (CP opening), the "Unexpected load" status will be displayed until plug removing.
- If the charging has been stopped due to a malfunction of the power contactor the "Power contactor failure" status will be shown until the breaker will be reactivated.

- If the charging has been interrupted due to a power failure the “Mains breakdown” status will be shown until the power supply restoration.
- If the charging has been stopped due to a malfunction of the energy meter the “Energy meter failure” status will be displayed until the restoration of the normal operation.
- If a malfunction is detected during the controls carried out at starting procedure the following status’ can be displayed:
 - “RCBO occurred”
 - “Power contactor failure”
 - “Energy meter failure”
 - “Card reader failure”
 - “COIMP error”
- If the station has been disabled (see par. EDIT STATION) the “Disabled” status will be shown.
- If the communication link between station and server is missing, it is shown the “Not connected” status.

9.2 STATIONS

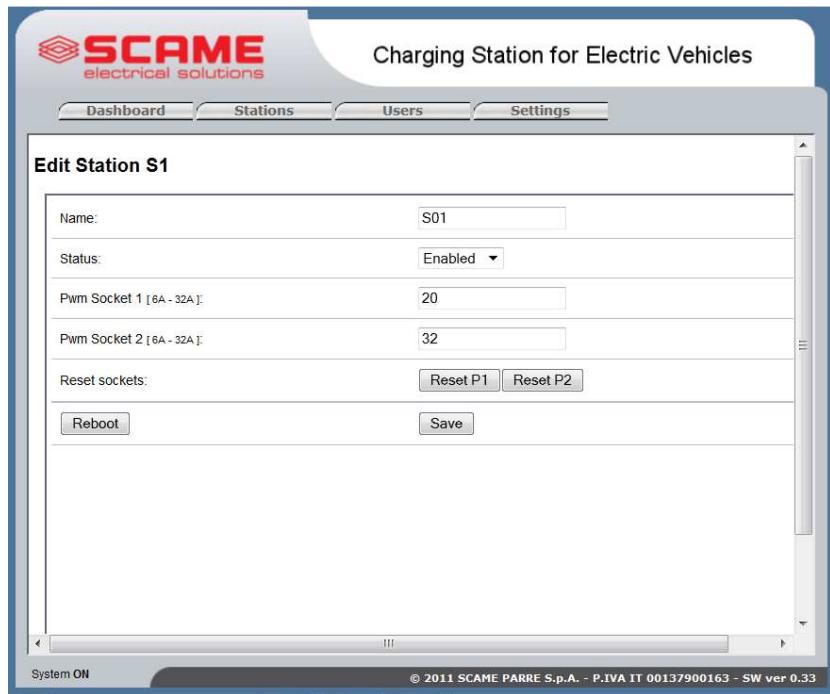


The screenshot shows a software interface for managing charging stations. At the top, there's a header with the SCAME logo and the text "Charging Station for Electric Vehicles". Below the header, there are tabs for "Dashboard", "Stations", "Users", and "Settings". The "Stations" tab is selected. The main area is titled "Stations DB" and contains a table with two rows of data. The columns are: code, name, status, type S1, pwm S1, type S2, pwm S2, and type. Row 1 (S01) shows Type 2A (With lock (1 actuator) with Digital counter with mirrorCONTACT), 32A [Max 32A], Type 2 (With lock (1 actuator) with Digital counter with mirrorCONTACT), 32A [Max 32A], CHARGING, ev, FW:S0 v02.07, and an "Edit" button. Row 2 (S02) shows Type 3C (With lock (1 actuator) with Digital counter), 32A [Max 32A], Type 3A (With lock (1 actuator) with Digital counter), 16A [Max 16A], CHARGING, ev, FW:S0 v02.07, and an "Edit" button. At the bottom of the interface, there's a footer with "System ON" and copyright information: "© 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33".

code	name	status	type S1	pwm S1	type S2	pwm S2	type
S01	S01	Enabled	Type 2A With lock (1 actuator) with Digital counter with mirrorCONTACT	32A [Max 32A]	Type 2 With lock (1 actuator) with Digital counter with mirrorCONTACT	32A [Max 32A]	CHARGING ev FW:S0 v02.07
S02	S02	Enabled	Type 3C With lock (1 actuator) with Digital counter	32A [Max 32A]	Type 3A With lock (1 actuator) with Digital counter	16A [Max 16A]	CHARGING ev FW:S0 v02.07

In this page it's possible to view the status, the configuration and the settings of maximum deliverable current of connected stations that can be modified clicking on "Edit" (see par. EDIT STATION).

9.2.1 EDIT STATION



In this page it's possible to name the station, to enable or disable the station for charging, to set the maximum current can be drawn, to reset a charge in progress as emergency remote unlocking and to restart the system.

(If the ZE Ready 1.2 label applies , the delivered current must not be lower than 8 A single-phase or 14 A three-phase)

9.2.2 LOG STATION

Charging Station for Electric Vehicles

Dashboard	Stations	Users	Settings		
USER_1	P2	13/02/2014 15:55	13/02/2014 15:56	00h 01m 01s	0.00 kWh (Charge aborted)
USER_1	P2	13/02/2014 16:19	13/02/2014 16:28	00h 08m 52s	1.97 kWh
USER_1	P2	26/02/2014 09:22	26/02/2014 09:25	00h 03m 25s	0.54 kWh
USER_1	P2	26/02/2014 09:26	26/02/2014 09:27	00h 01m 01s	0.00 kWh (Charge aborted)
USER_1	P2	26/02/2014 11:54	26/02/2014 11:58	00h 04m 14s	0.00 kWh (Charge aborted)
USER_1	P2	26/02/2014 11:59	26/02/2014 11:59	00h 00m 27s	0.00 kWh (Charge aborted)
USER_1	P1	26/02/2014 12:07	26/02/2014 12:14	00h 06m 50s	0.15 kWh
USER_1	P2	26/02/2014 12:14	26/02/2014 12:15	00h 00m 27s	0.00 kWh (Charge aborted)
USER_1	P2	26/02/2014 12:35	26/02/2014 12:36	00h 01m 04s	0.01 kWh
USER_2	P2	26/02/2014 12:36	26/02/2014 12:37	00h 01m 21s	0.03 kWh
USER_1	P1	26/02/2014 14:51	26/02/2014 14:53	00h 01m 49s	0.04 kWh
Total:		38 charges		1h 31m 8s	9.30 kWh

Buttons:

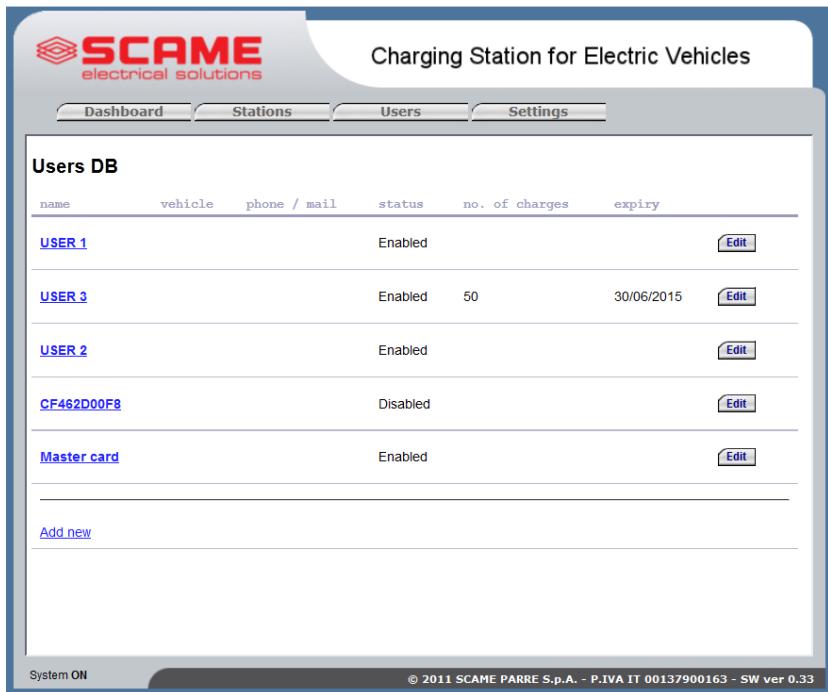
System ON © 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33

Click on the station name to enter in log page where all the transactions of the station are listed, sorted by user, socket-outlet, start and end of charging, duration and energy consumption.

The log page also provides the total number of the charges, the total duration and energy consumption.

The data can be saved to file for exporting or deleting (the reset button deletes only the current view, all the transactions can be viewed in the page SYSTEM).

9.3 USERS



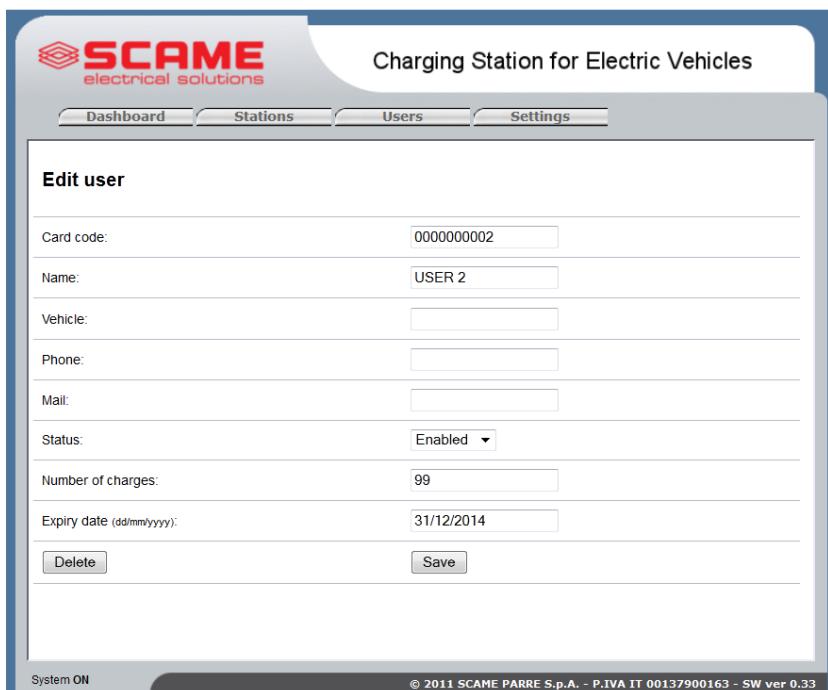
The screenshot shows the 'Users DB' section of the software. At the top, there is a header with the SCAME logo and the text 'Charging Station for Electric Vehicles'. Below the header, there are tabs for 'Dashboard', 'Stations', 'Users', and 'Settings'. The 'Users' tab is selected. The main area displays a table titled 'Users DB' with columns: name, vehicle, phone / mail, status, no. of charges, and expiry. The table contains the following data:

name	vehicle	phone / mail	status	no. of charges	expiry
USER 1			Enabled		Edit
USER 3			Enabled	50	30/06/2015 Edit
USER 2			Enabled		Edit
CF462D00F8			Disabled		Edit
Master card			Enabled		Edit
Add new					

At the bottom of the screen, there is a footer bar with the text 'System ON' and '© 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33'.

In this page it's possible to view the user information and the settings for charging access that can be modified clicking on "Edit" (see par. EDIT USER); it is also allowed to add new users clicking on "Add new" (see par. ADD NEW USER).

9.3.1 EDIT USER



The screenshot shows the 'Edit user' form. At the top, there is a header with the SCAME logo and the text 'Charging Station for Electric Vehicles'. Below the header, there are tabs for 'Dashboard', 'Stations', 'Users', and 'Settings'. The 'Users' tab is selected. The main area displays a form titled 'Edit user' with fields for Card code, Name, Vehicle, Phone, Mail, Status, Number of charges, and Expiry date. The form also includes 'Delete' and 'Save' buttons. The following data is present in the form fields:

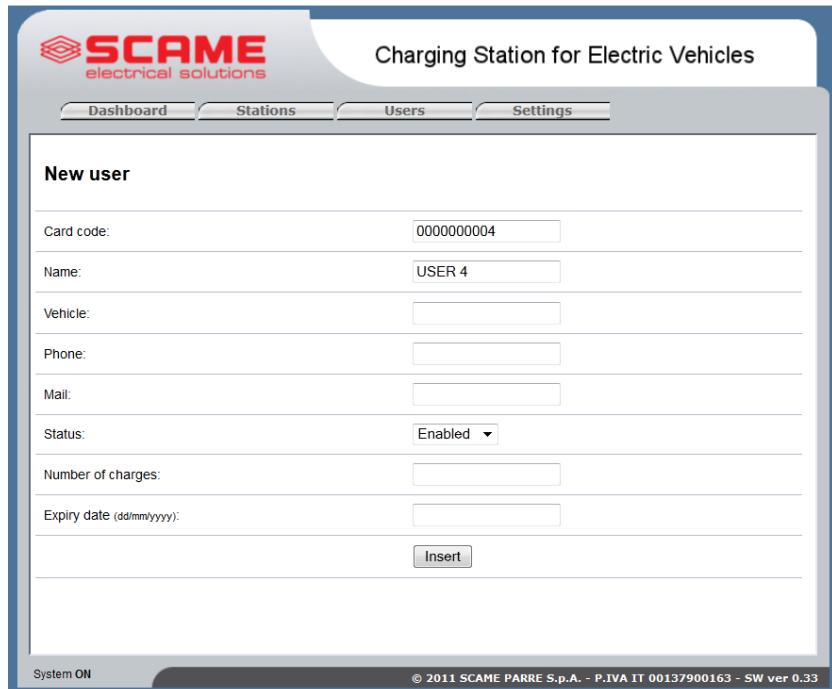
Card code:	0000000002
Name:	USER 2
Vehicle:	
Phone:	
Mail:	
Status:	Enabled
Number of charges:	99
Expiry date (dd/mm/yyyy):	31/12/2014

At the bottom of the screen, there is a footer bar with the text 'System ON' and '© 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33'.

In this page it's possible to insert the user information as the name, the vehicle, the phone number and e-mail address.

It's even possible to enable or disable the user card, to restrict the use to a limited number of accesses for charging (the value is updating automatically) and/or to define an expiry date.

9.3.2 ADD NEW USER



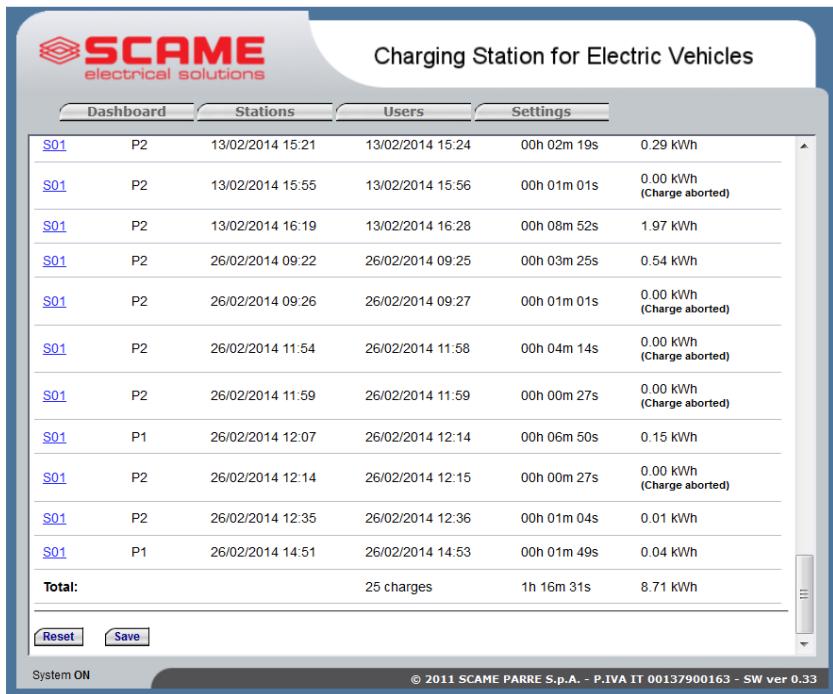
The screenshot shows a software interface for managing users at a charging station. At the top, there is a header with the SCAME logo and the text "Charging Station for Electric Vehicles". Below the header, there is a navigation bar with four tabs: "Dashboard", "Stations", "Users", and "Settings". The "Users" tab is currently selected. The main area of the screen is titled "New user". It contains several input fields for user information:

- Card code: 000000004
- Name: USER 4
- Vehicle: (empty field)
- Phone: (empty field)
- Mail: (empty field)
- Status: Enabled (dropdown menu)
- Number of charges: (empty field)
- Expiry date (dd/mm/yyyy): (empty field)

At the bottom right of the input area, there is a button labeled "Insert". At the very bottom of the screen, there is a footer bar with the text "System ON" on the left and "© 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33" on the right.

In this page it's possible to enter the data for a new user; it is not allowed to assigne the same identification code already used.

9.3.3 LOG USER



The screenshot shows a software interface for a charging station. At the top, there's a header with the SCAME logo and the text "Charging Station for Electric Vehicles". Below the header is a navigation bar with four tabs: "Dashboard" (selected), "Stations", "Users", and "Settings". The main area is a table listing transactions. The columns are: User ID, Station, Start Date/Time, End Date/Time, Duration, and Energy Consumption. The table contains 14 rows of data, mostly for user S01, with one row for user P1. The last row is a summary: "Total:" followed by "25 charges", "1h 16m 31s", and "8.71 kWh". At the bottom of the interface are two buttons: "Reset" and "Save". A status bar at the bottom indicates "System ON" and provides copyright information: "© 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33".

User	Station	Start Date/Time	End Date/Time	Duration	Energy Consumption
S01	P2	13/02/2014 15:21	13/02/2014 15:24	00h 02m 19s	0.29 kWh
S01	P2	13/02/2014 15:55	13/02/2014 15:56	00h 01m 01s	0.00 kWh (Charge aborted)
S01	P2	13/02/2014 16:19	13/02/2014 16:28	00h 08m 52s	1.97 kWh
S01	P2	26/02/2014 09:22	26/02/2014 09:25	00h 03m 25s	0.54 kWh
S01	P2	26/02/2014 09:26	26/02/2014 09:27	00h 01m 01s	0.00 kWh (Charge aborted)
S01	P2	26/02/2014 11:54	26/02/2014 11:58	00h 04m 14s	0.00 kWh (Charge aborted)
S01	P2	26/02/2014 11:59	26/02/2014 11:59	00h 00m 27s	0.00 kWh (Charge aborted)
S01	P1	26/02/2014 12:07	26/02/2014 12:14	00h 06m 50s	0.15 kWh
S01	P2	26/02/2014 12:14	26/02/2014 12:15	00h 00m 27s	0.00 kWh (Charge aborted)
S01	P2	26/02/2014 12:35	26/02/2014 12:36	00h 01m 04s	0.01 kWh
S01	P1	26/02/2014 14:51	26/02/2014 14:53	00h 01m 49s	0.04 kWh
Total:		25 charges		1h 16m 31s	8.71 kWh

Buttons: Reset, Save

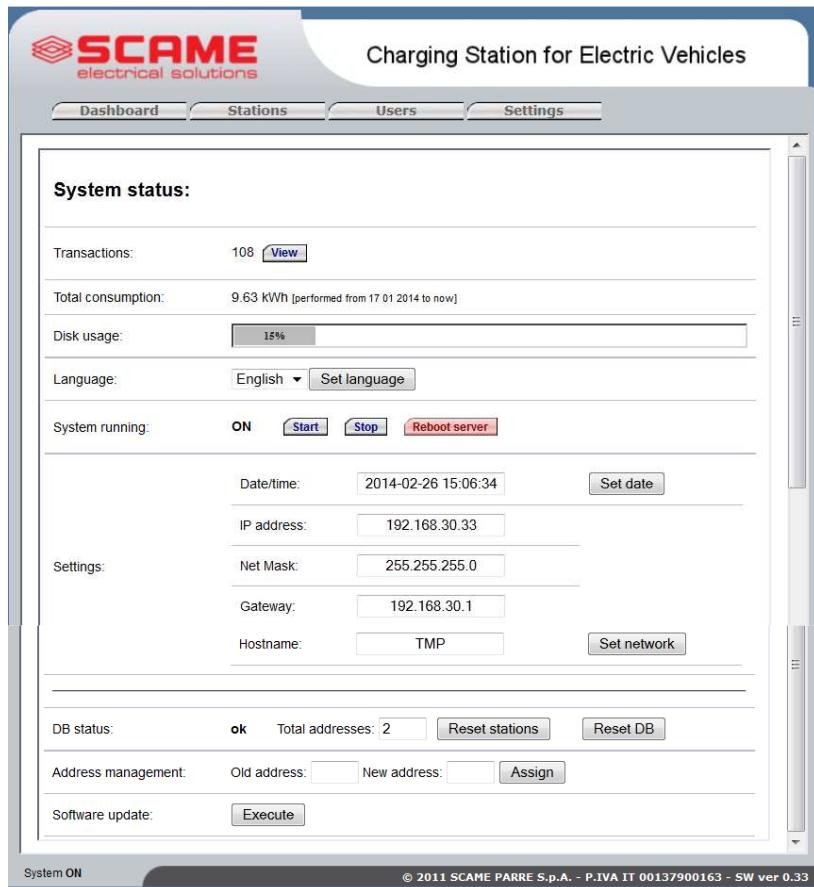
Status Bar: System ON, © 2011 SCAME PARRE S.p.A. - P.IVA IT 00137900163 - SW ver 0.33

Click on user name to enter in log page where all the transactions of the user are listed, sorted by station, socket-outlet, start and end of charging, duration and energy consumption.

The log page also provides the total number of the charges, the total duration and energy consumption.

The data can be saved to file for exporting or deleting (the reset button deletes only the current view, all the transactions can be viewed in the page SYSTEM).

9.4 SYSTEM



In this page the following options are allowed:

- Date and time setting: enter new data and click on “Set date” to pass new data to the stations.
- Network setting: the server is pre-configured, enter IP address and gateway if necessary (contact your net administrator), click on “Set network” to pass the variation to the server.
- System running: click on “Start” to start the system, “Stop” to stop it, “Reboot server” to restart the server.
- Transactions view: in this page it's possible to view all the transactions sorted by user name, station, socket-outlet, start and end of charging, duration, energy consumption and the total amount about number of charges, duration and energy consumption.
- The data can be saved to file for exporting or deleting (if you click on “Reset” all the transactions will be permanently deleted).
- Total consumption: it's the total energy supplied by the stations up to now since the last transactions reset.
- Language setting: select the language and click on “Set language” to make effective the setting.
- Disk usage: it's the capacity use of server memory and depends on the number of saved transactions.
- DB status and addresses settings: to be used only in case of network installation or to edit the existing network arrangement.
 - Enter in “Total addresses” the number of the stations connected to the server (min. 1, max. 32) and click “Reset stations” to update the stations database (the concerned page will be updated according to the entered stations).
 - Click on “Reset DB” to delete the users database only if necessary.

- Addresses assignment and management: to be used only in case of network installation or to edit the existing network arrangement.
 - Switch off all the stations.
 - Switch on the station to address.
 - Stop the system.
 - Enter 1 or the previous value in “Old address”, the required number in “New address” and click on “Assign”.
 - Restart the system.
 - Switch off the assigned station, repeat the assignment for all remaining stations: pay attention and don't use an address already assigned.

Note: in order to enable the system to get new settings successfully, stop (click “Stop”) and again restart the server (click “Start”).

10 SAFETY INFORMATION

DANGER Hazard of electric shock, explosion or electric arc

- Before working on the equipment turn off all power supplying this equipment and use an appropriate voltage detection device to confirm the absence of voltage on each accessible component.
- Before to switch on and operate the station, check the metal enclosure is earthed by the yellow-green wiring; the mains circuit shall be protected with a proper differential circuit breaker associated to the earthing system.
- The installing and using instructions must be observed very carefully; failure to comply with safety warnings may result in serious injuries or may lead even to death.

WARNINGS

- ✓ The installation, the operation and the maintenance of the product must be performed only by qualified and authorized people.
- ✓ This equipment must not be installed or used if you notice that it is damaged.
- ✓ The manufacturer shall not be held liable for any damages to persons, animals and/or things caused by failure to comply with instructions and warnings given in this manual.
- ✓ A wrong earthing resistance may affect the charging of the vehicle.
- ✓ This equipment must be installed and operated according to all currently applicable local regulations and technical requirements.

NOTICE Hazard of damage to charging station

- Don't touch electronic cards and/or use proper devices to reach components/parts ESD sensitive.
- In order to guarantee an efficient action against overvoltages, it is recommended to place some lightning protection (i.e. surge arresters cartridges) into the cabinet or secondary distribution board.

RESIDUAL CURRENT DEVICE (RCD) TEST

To provide an uninterrupted service, a dedicated power link for supplying every charging station is recommended, as well each socket-outlet is protected by a single RCBO circuit breaker.

The RCD must be tested periodically in compliance with current maintenance regulations to ensure that it is working correctly; if local regulations don't exist, the manufacturers recommend to carry out the test every month.

Pressing the test button (make sure that the device is operating), the RCD must trip and if it does not, contact your trusted electrician because the installation safety is no longer guaranteed since persons are not protected against direct and indirect contacts.

Even if this protection device is equipped, it doesn't exempt from observe all the cautions related to the use of the electric current.

11 PROTECTING THE ENVIRONMENT

Disposing of packaging

The packaging materials from this product can be recycled and they must be disposed according to the enforced regulations in the country of usage.

Decommissioning and disposing of equipment

When the product is dismantled, all components and materials have to be identified and separated to allow their reuse and/or recycling in protecting the environment.

The waste electric and electronic equipment (WEEE) must be treated and disposed complying with regulations in force in the relevant country.

12 DOWNLOADS AND DOCUMENTS

This manual and other technical information can be downloaded from our website at www.scame.com. You can also download the software tool SLActive to manage the RFID cards and the SLSetup for station configuration (Installation file 208.PROG.zip) at EcoMOBILITY pages.

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